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ORIGINAL COMMUNICATIONS.

Political Agriculture. By H. C. [For the Quarterly Journal of Agriculture, Mechanics, and Manufactures.]

What should the Government of the United States do for Agriculture? This is an important inquiry. Agriculture is essentially the great interest of the country. The just protection of commerce, the fostering of our manufactures, and all internal improvements, the widening and deepening of our rivers, the forming of canals, the laying of railroads, and all the various facilities and forms of mutual intercourse and exchange, are indissolubly connected with the agriculture of the country, and have a favorable bearing upon its prosperity; but our particular inquiry is, what ought the Government to do to promote the art and science itself; to make its principles better known; to improve its practice; to excite and encourage a stronger emulation; and to increase those means and facilities for its advancement which are within the power of the government alone.

The British Government has been most wise in their concern and liberal in their expenditures for this object. They appointed a Board of Agriculture, at the head of which was placed that enlightened and indefatigable friend of the cause, Sir John Sinclair. Under their direction, an exact and complete survey was made of the several counties of England and Scotland, the reports of which surveys were printed at the expense of the Board. They embody an immense mass of valuable information, and contributed in an effectual manner to the improvement of the agriculture of the United Kingdom.

General Washington, himself passionately devoted to agriculture, familiar, even amidst all his various concerns, with its practical details, and aware of its importance to the country, in some letters to Sir John Sinclair, who had sent him some of these reports, perceived at once their great value, and looked forward to the establishment of a similar board among us, whose labors might be directed with equal success to the same valuable results. His letters are deserving of attention, and I here quote parts of them.

"Philadelphia, 20th July, 1794.

"I have received with peculiar pleasure and approbation the specimens of the county reports you have sent me. Such a general view of the agriculture in the several counties of Great Britain is extremely interesting, and cannot fail of being very beneficial to the agricultural concerns of your country, and those of every other wherein they are read. I am so much pleased with the plan and execution myself, as to pray you to have the goodness to direct your bookseller to continue to forward them to me, accompanied with the cost, which shall be paid to his order, or remitted as soon as the amount is made known to me. When the whole are received, I will promote as far as in me lies the reprinting of them here.

"I know of no pursuit in which more real and important service can be rendered to my country, than by improving its agriculture, its breed of useful animals, and other branches of a husbandman's care; nor can I conceive any place more conducive to this end than the one you have introduced for bringing to view the actual state of them in all parts of the kingdom; by which good and bad habits are exhibited in a manner too plain to be misconceived; for the accounts given to the British Board of Agriculture appear in general to be drawn up in a masterly manner, so as fully to answer the expectations formed in the excellent plan which produced them,—affording, at the same time, a fund of information, useful in political economy, and serviceable in all countries."

A second letter is dated Philadelphia, 10th July, 1795: "I could not omit so favorable an opportunity as the departure of Mr. Strickland affords me, of presenting my best respects to you, and my sincere thanks for the views of agriculture, in the different counties, which you have had the goodness to send me, and for the diploma (received by the hands of Mr. Jay,) admitting me a foreign honorary member of the Board of Agriculture. For this testimony of the attention of that body, and for the honor it has conferred on me, I have a high sense; in communicating to the Board, I shall rely more on your goodness, than on any expression of mine to render it acceptable.

"From the first intimation you were pleased to give me of this institution, I conceived the most favorable ideas of its utility; and the more I have seen and reflected on the plan since, the more convinced I am of its importance, in a national point of view, not only to your own country, but to all others which are not too much attached to old and bad habits to forsake them; and to new countries that are just beginning to form systems for the improvement of their husbandry."

A third letter to the same gentleman is dated Philadelphia, 10th December, 1797: "The result of the experiments entrusted to the care of Dr. Fordyce must be as curious as they may prove interesting to the science of husbandry. Not less so will be an intelligent solution of those inquiries relative to live stock, which are handed to the public."

"A few months more, say the third of March next, and the scenes of my political life will close, and leave me in the shades of retirement; when, if a few years are allowed me to enjoy it (many I cannot expect, being upon the verge of sixty-five,) and health is continued to me, I shall peruse with pleasure and edification, the fruits of the exertions of the Board for the Improvement of Agriculture; and shall have leisure, I trust, to realize some of the useful discoveries which have been made in the science of husbandry.

"Until the above period shall have arrived, and particularly during the present session of Congress, which commenced the 5th inst., I can give but little attention to matters out of the line of my immediate avocations. I did not, however, omit the occasion at the opening of the session, to call the attention of that body to the importance of agriculture. What will be the result, I know not at present, but if it should be favorable, the hints, which you will have it in your power to give, cannot fail of being gratefully received by the members who may constitute the Board."

I regret that I have not at this time access to the speech to which he refers in this letter; but it is understood that he proposed to Congress the establishment of a Board of Agriculture similar to that which existed in Great Britain. Such were the views of this great man, this true patriot, of the importance of the great interest of agriculture to the United States; and of means within the immediate power of the Government, by which they could most essentially subserve its advancement and prosperity. It is certain it has not received that direct attention and patronage to which it is entitled; and though the Government has done something for the protection of the wool grower, and for the cultivation of silk and sugar, by the publication and distribution of valuable treatises on these two important subjects, yet very little has been, nothing compared with what might be, may I not add, ought to be done, both for these and other important interests of agriculture. The establishment of a Board of Agriculture like the English Board, composed of a few of our most enlightened, enterprising, and patriotic farmers, or planters, whether in Congress or out of it, who would give their attention to obtain a thorough agricultural survey of the whole country, would be of the highest benefit. This is a matter of such universal advantage, and in which no party views could mingle, unless they were forced in by violence, I can but indulge the hope

that if it were distinctly presented and urged upon Congress by a respectable array of names, in different parts of the country, it would be favorably considered. But if the plan should be thought too extensive to be feasible by the government of the United States, it ought to be urged upon the different States. Let the Empire State, the magnificent republic of New-York, take the lead in this as in other splendid essays of improvement. Massachusetts, never behind in any good work for the general welfare, and Pennsylvania, now almost breathless in her public enterprises, will no doubt follow in her train; and, in due time, a mass of agricultural intelligence would be obtained, and at a comparatively trifling expense, which would, in its beneficial influence upon the States who should undertake such a thorough agricultural survey of their own territories, be more than an equivalent for a hundred times its cost.

With a view of communicating my own ideas more fully, and of drawing the attention of others to the subject, I hope it will not be thought presuming too much if I subjoin such a form of memorial as I should be glad to see presented to the Congress of the United States at a future session, with the names of many of our distinguished and influential fellow-citizens attached to it; and if it should fail of success there, or there should be so little hope of success as to discourage and prevent the application, such an one as might properly be presented to the Legislatures of several of our States, hoping that at least there the obvious advantages of such a survey might, from being nearer, be more fully seen, and the project be received with favor. I am very far from presuming that this is the best way of accomplishing the particular object,—that is, a thorough agricultural survey of the country; and entertain no exclusive partiality for my own own views; but this is a mode which has occurred to me, and with all due respect I leave it to the wise, intelligent, and patriotic, among the friends of agriculture, to suggest a better.

The memorial of the subscribers to the Congress of the United States, respectfully represents:

That agriculture is the great interest of every civilized community—the mother of all the arts—and the basis of all national prosperity—and in this view claims the fostering care of every patriotic and enlightened government.

That the United States of North America is, and must continue to be, essentially an agricultural people; and that an improved agriculture must directly and most favorably conduce to its manufactures and commerce, and to the substantial comfort and best interests of the whole people.

That the agriculture of the United States, although in an improving, is yet in a very imperfect condition; the resources of the country are very partially unfolded; the cultivation yields by no means those ample returns which it may be made to command; and is far from that improvement and perfection to which it may with the highest advantage be advanced.

That it would contribute essentially and immediately to this object: that a general agricultural survey of the whole country, should be undertaken and gradually prosecuted to its completion. That this survey should embrace the actual condition of its agriculture in different parts of the country, going, as far as practicable, from personal observation and intercourse with the most intelligent and successful cultivators, into detailed and statistical accounts of the crops cultivated, the modes of cultivation, the average yield, the value and application of labor, the disposal of the produce, the implements of husbandry, the condition and capabilities of the soil, the improvements of which the agriculture of any particular part of the country is susceptible, and, in general, whatever may be immediately connected with its agricultural advantage and prosperity, particularly in the manner of Arthur Young's Agricultural Tours, Radcliffe's Survey of the Agriculture of Flanders, the County Reports of England, Sinclair's Reports of the Agriculture, and his particular account of the Husbandry of Scotland.

That such survey should particularly embrace the cultivation of the leading products of the country—maize, wheat, cotton, sugar, tobacco, hemp, wool, and silk; the cultivation of the most valuable forest trees; together with other crops and products not less essential to comfort and use, but of less comparative importance and extent; and the character, rearing, and management of every species of live stock.

That the information thus obtained should be immediately furnished to the Government, and measures taken for its general diffusion.

Your memorialists would further respectfully suggest, that to accomplish this most valuable object, there be appointed a joint and standing committee of both Houses of Congress; or otherwise, there be selected, in any mode deemed best, as many as five individuals from the citizens at large, who shall constitute a Board of Agriculture for the United States.

That there be appointed one or more competent individuals, whose duty it shall be to prosecute such survey; and whose further duty it shall be to be in attendance upon the Board of Agriculture at Washington at least one month during every session of Congress; and to them make a full report of his or their doings, surveys, and travels; and who shall themselves act as Secretaries to said Board.

That it shall be the duty of said surveyor or surveyors, to spend at least —— months in every year, under the direction of said Board, in the actual and personal survey of different parts of the country, with a view to obtaining and diffusing the fullest agricultural information; and that he or they shall present a written and full report of all his or their doings and observations annually at the first meeting of the board.

That it be the duty of the said Secretary or Secretaries, under the sanction and direction of said committee, to procure models of all new and valuable machines to be employed for agricultural purposes, one of each kind of which, as far as may be adapted to that part of the country, shall be deposited at Washington, and at the seat of government of each State in the Union; to open a correspondence with distinguished individuals abroad, and in different parts of the country, on the subjects of agricultural interest and improvement, and to obtain and circulate such valuable seeds or plants for agricultural purposes as it may be desirable to introduce into the country, or diffuse in different parts of it.

That it be the duty of the said Secretary or Secretaries to manage and superintend, under the sanction and order of said Board, the publication and distribution of such reports and papers as may be deemed of general utility and importance.

That for these objects there be annually appropriated the sum of —— dollars.

Such, Mr. Editor, are the outlines of a plan, simple enough, in my opinion perfectly feasible, and of the most obvious and highest utility; and the expense of which, compared with the public advantages to accrue from it, would be of no consideration; and compared with other expenditures of the Government for objects of far more doubtful utility, would be hardly a drop to the ocean. How many individuals it might be necessary to engage in such survey, and how long a time might be occupied in it, would be matters of further consideration. One active, intelligent, and practical man might accomplish it. Two would doubtless be ample. It would not be an affair to be hurried, and the statistical information to be collected would require great care and exact inquiry. Six years would not be too short a time, if the country were divided into two great sections, to accomplish it in a proper manner. As the survey progressed, much valuable matter would be gradually elicited. Every farmer and planter of any consideration in the country would be excited and interested by it; would from patriotic motives be emulous to communicate all the information in his power; and from personal considerations, would be anxious to put his property in the best condition for examination. Massachusetts has already set the example of a thorough and able geological survey of her territory. New-York has done the same in respect to several of her counties; but, precisely to what extent, I am not apprized. An agricultural survey, conducted in the manner above described, would be of more value, and might itself be instrumental of furnishing much geological information; and exposing many of the mineral as well as vegetable treasures of the country.

I shall not now go farther into detail of the advantages which I think would accrue to the country, if this project could be intelligently and properly executed. I hope it will not be regarded as wholly visionary. I offer these suggestions with diffidence; but with the strong desire that

they may attract the attention of some of our distinguished statesmen and citizens, who estimate justly the importance of an improved agriculture, and are willing to labor at its advancement; and that it will call out from such men opinions and discussions, which, if not favorable to it, will lead to wise and better plans. No one will listen to such opinions with more satisfaction, or co-operate, in any useful and feasible projects for the same objects, as far as my humble power extends, than myself.

H. C.

Meadowbanks, Jan. 30, 1835.

Anchor Ice. By JACK FROST. [For the New-York Farmer and American Gardener's Magazine.]

There is perhaps no operation in nature which occurs so frequently, and yet is so little understood by people in general, as what is commonly called *anchor ice;* or the formation of ice, either adhering to the bottom, or to stones and other solid bodies below the surface of the water, and which is generally considered a prognostic of an approaching thaw.

It has been said by an ingenious writer, that "a mystery explained is a mystery destroyed," and nothing could exemplify this saying better than the wonderful mystery of anchor ice, which a very little explanation will render no mystery at all.

It is a constant law of nature, that every substance is expanded by heat and contracted by cold. And it is another law, that any substance immersed in a fluid or liquid, will float at the top or sink to the bottom, in proportion as it is specifically lighter or heavier than the medium in which it is placed. Hence, if any particles of water are colder than the rest, those particles will be condensed and become specifically heavier, and will therefore sink to the bottom. Thus, as the particles of water give off their heat to the superincumbent atmosphere, which is colder, they sink to the bottom, giving place to others, which are cooled and sink in like manner; and the particles thus cooling and sinking, receive fresh heat from the surrounding particles, which are warmer, and of course rise again, giving place to the colder ones behind them; thereby keeping up a constant action of the particles of water from top to bottom and from bottom to top, which is more or less active, according to the difference of temperature between the water and the atmosphere above it.

From these facts it is evident, that, as the coldest water will always be at the bottom, no water can ever become frozen at the surface until the whole body of water becomes cooled down to near the freezing temperature; and this explains the cause why deep waters do not freeze as soon as shallow, and why the ocean never freezes at all.* And from the same causes, were it not for a counteracting principle, showing an equal display of infinite wisdom, water would always begin to freeze at the bottom, and we should know no ice but anchor ice.

When the water has given off that portion of caloric, which was necessary, under the atmospheric pressure, to sustain it in a liquid state—in other words, when it is cooled down near to the temperature of — Fahrenheit—the change commences, from the liquid to the solid state; in which change, as the operation of chrystalization begins to take place, the frozen particles, instead of farther condensation, begin to expand, and becoming specifically lighter, float on the surface, and this process continuing for a time, the water becomes covered with a body of ice.

Along near the middle of the temperate zone the water is seldom covered with ice more than from 12 to 18 inches thick. Below this the water still remains above freezing temperature. The ground, uncovered with water, probably, at times, and in exposed places, freezes a little deeper.

If from a pond or lake which is frozen over, the water discharges itself by a short and pretty rapid stream, into another, which is also frozen, the water in passing will not perhaps cool sufficiently to freeze in its passage; aud if the stream is of considerable depth, it will protect the ground from freezing below. But where the stream is shallow, if the cold weather continues long and severe, the ground at the bottom becomes frozen, and the water passing over it freezes to it; and every stone or other substance, lying upon the bottom, becomes the nucleus to a body of ice.

In like manner, where the water is raised by a dam, and the pond frozen over, if the weather continues very cold for a long time; and especially if the dam is long, and consequently the sheet of water which passes over it very thin, and therefore not sufficient to protect the dam from frost, the dam in that case will become so cold that the water will form ice in passing over it, which adhering to the dam as a nucleus, the whole dam will become covered with ice, which will continue to increase in thickness, till the obstructed water rises and breaks away, unless it finds an outlet somewhere else.

In common streams, when the cold commences suddenly, the surface becomes frozen, before the ground at the bottom is cooled to freezing point. But when the cold becomes intense and continues long, the ground and stones at the bottom are often cooled far below freezing, and though, perhaps, already frozen at the top, freezes to the bottom and to the stones, and frequently so interrupts its own passage as to force its way over the ice above, or if the surface was not frequently frozen, the bottom will be covered with ice and the water will run over it.

With respect to its indicating a thaw, there can be no doubt but it is just as sure a token as a long spell of severe cold weather, for one can scarcely happen without the other, and as one extreme of weather generally follows another, when the weather has been very cold for as long a period as usual, it is a pretty sure sign it will not continue so much longer, and of course there will be a thaw; just as after a long season of dry weather we expect rain.

JACK FROST.

Lansingburgh, 17 Jan., 1835.

* Except in shallow places round the edges, and within the polar circles.

The proprietor of the Farmer and Gardener's Magazine considers himself and his readers fortunate in being able to avail himself of the extensive and critical knowledge of the writer of the following and several other communications over the same signature. They require no endorsement from us to satisfy any one who will read them, that their author has been a constant and close observer of passing events connected with the agricultural prosperity of the country, or of his competency to give instruction, even to our most enlightened farmers, in the various branches of agricultural science. He is a *practical* as well as a *book* farmer, and we hope to draw largely upon his ample stores of useful information for the benefit of our readers.

On Stock for the Dairy. By H. C. [For the New-York Farmer, and American Gardener's Magazine.]

Live stock, including horses, neat cattle, sheep, and swine, is as important a subject as any to which the farmer's attention can be directed. That there are distinct breeds of various and peculiar properties, which render them adapted to the different purposes of labor and food; that all of them, under proper management, are susceptible of improvement; that by judicious crossing, comparatively new breeds may be formed, certain desirable properties be extended, increased, and propagated, and what we deem defects or faults, remedied or entirely abolished, are points so well established in respect to all the animal creation, so entirely confirmed by experiments within the knowledge of every man who has any pretensions to intelligence, that it would be idle to waste one word in attempting to establish them. That like tends to produce like, and that physical, intellectual, and moral qualities are transmitted from the sire to his offspring, are among those established laws of nature which common observation ascertained long before science attempted to explore, and teach their wide and universal operation; or experiment, with unhesitating confidence, ventured practically to apply them.

The farmer who disdains or neglects these established truths, or who fails to act upon them, let the sphere of his operations be as humble as it may be, is blind to his true interest, and can lay no claims to rank among the class of careful and intelligent husbandmen. The attempts and generous efforts, therefore, of those public spirited men who have sought to avail themselves of the long experience and extraordinary advances of older countries in the improvement of

their domestic animals, and with the most praiseworthy liberality to spread these advantages among us, entitle them to high regard, and justly place them among the benefactors of the community.

It is with these views, with sentiments of gratitude and respect, that I have regarded the liberal, and in many cases the entirely disinterested exertions and expenditures of gentlemen in various parts of our country, to introduce the best breeds of neat cattle from abroad, and to extend their advantages as widely as possible; and it is with ineffable contempt and disdain that I hear the sneers which the malignant, narrow-minded, and illbred, cast upon such patriotic services, and to which I am sometimes impelled to listen. It cannot, however, be demanded, that we should hail every innovation as an improvement, or that we should admit without ample inquiry, and the severe test of actual experiment, and exact comparison, that the introduction of any foreign breed of animals, with a view to propagation, must be an advantage. This is a question of fair discussion, and one which is to be settled, not by any imaginary or conjectural standard—not by theories, however plausible—not by mere guesses, or vague reports, unattested by competent authority; but by direct examination,—by simple, authenticated, and incontrovertible facts.

From the first time I ever saw one of the fine animals of the Improved Durham Short Horns, I have been an admirer of this beautiful race, not only for the symmetry of form which they present, but for the wonderful success which has followed the skill, perseverance, and enterprise of those breeders, who have boldly attempted to form and propagate a race of animals after their own *beau ideal* of excellence. It has been my good fortune to see many of the choicest specimens of this noble race which have been brought into the country, and of those which have been propagated from them since their arrival, at the cattle shows at Brighton, Worcester, and Albany; in the establishments of private individuals—at Salem, in the possession of E. H. Derby, Esq. to whose care were entrusted the magnificent animals, Admiral, and Flora, sent as a present to the country by Sir Isaac Coffin, whose munificence is above all praise; at Col. Jacques', in Charlestown, who had in his possession Cœlebs, and the matchless bull Bolivar; at the late Mr. Williams', in Chelsea, who had a numerous herd of them; at Hon. John Welles', in Dorchester, who had several valuable cows; at Gov. Lincoln's, in Worcester, who was justly proud of Denton's progeny; at James D. Wolfe, Esq. in Bristol, whose cows with their deep udders were magnificent; at Henry Watson's, Esq., in Windsor, where I had the pleasure of seeing the celebrated bull, Wye-Comet; at Chas. H. Hall's, Esq. in Harlæm, whose Short Horns, and whose Devons, a present from the fine stock of Mr. Coke, contended for the palm of excellence; at Powelton, at the establishment of the most liberal importer and most devoted advocate of this fine race, whose admirable animals were a perfect justification of the enthusiasm with which he regarded them at Albany, where, besides various fine specimens of the stock from different individuals, (whose names, as I saw their animals, but not their owners, only at a public show, I shall be pardoned for not remembering,) I had the gratification of seeing Mr. Van Rensselaer's extraordinary bull of two years old, and Mr. C. N. Bement's imported cow, whose superior in promise and general appearance I have never yet seen; at Messrs. Percy's, and Rogers', at Hoosic, N. Y., whose stock is admirable, and have been managed with great care; and at Hyde Park, at the noble establishment of Dr. Hosack, where without question, judging from the actual inspection of their yield of milk, as well as their general appearance, I found the most numerous and finest family of Short Horn cows that I have seen, or which, indeed, I ever expect to see; and a bull, whose splendid form gave him a just right to preside over such a seraglio.

Greatly, however, as these opportunities have contributed to my personal gratification, I shall not assume the character of a practised, or in any measure a competent judge. I hold myself as no other than a plain inquirer after truth; much as I have admired their appearance, and delighted as I have been with the encomiums which I have heard passed upon them, and not doubting in any case that great advantages are to result from their introduction into the country,—if no other, the great one of seeing what can be done in such cases by human skill and perseverance,—still I wait anxiously for more facts before I make up my judgment as to the extent of these advantages, and in what particular respects these advantages are to be found. I am aware that I am approaching an exciting subject; I recollect with sorrow the angry collision into which two highly respectable gentlemen were brought on this very matter, and the fear of kindling again in others these slumbering, may I not rather hope, these extinguished fires, has long deterred me from entering upon it. I shall not willingly, however, provoke hostility; I shall engage in no controversy. If there must be contention among the short horns and the long horns, let the cattle settle it among themselves. I go into the field unarmed, and as a non-combatant.

There are various points yet to be settled in respect to these cattle. Their early maturity, a most valuable property, seems to be determined. That they are great consumers is equally admitted. Their general tendency to keep themselves in high condition is not so well settled. In Brighton market they do not sell so well as our native stock, because, as it is believed there, (I have it from the highest authority,) they do not *prove* as well,—that is, do not have so much tallow. It is obvious they can have had but few samples for trial, and those not perhaps of the best kind; there must have been very few indeed, if any, of the pure blood. But a matter which I deem of great importance, especially to the northern section of the country, is whether they are preferable to stock already to be found among us for dairy purposes. Here it is we want facts; exact, authentic, and well established statements of the quantity and quality of their milk; how much milk has been obtained from them; how many pounds; how many quarts; whether beer or wine measure; how much butter and how much cheese has been obtained from them in a given time; and how at such times they have been managed and fed; and as, in such a case as this, the public advantage ought to be our only object, and the truth must in the end be equally important to all, we respectfully ask gentlemen, who possess these fine animals, to make these experiments and examinations, and fully report them; that if it should appear they are as valuable for dairy purposes as has been represented, the agricultural public may know what a blessing is within their reach; but if it should be found that they are not so productive as animals which have long been possessed among us, we may be induced to further, by more judicious selection, and more faithful and liberal keeping, the improvement of our own native stock.

The only decisive experiment, which has come within my knowledge, is that of a cow, called Belina, owned by John H. Powel, Esq., Philadelphia, from whose milk, in three days in May, 1827, eight pounds thirteen ounces of butter were obtained, which would be equal to twenty and one half pounds per week. This is an extraordinary yield, but it will be perceived that it was a very short trial, and that it was only an individual example. It were greatly to be wished that this public spirited gentleman had given the public further results of the same cow, and likewise the results of similar experiments with others of his noble animals. My own experience with this stock has been singularly unfortunate. I have had seven of them, some full blooded and others half blooded, from Cœlebs, Admiral, and Denton; and, for the quantity and quality of their milk, they have been very inferior, I had almost said worthless, even under every advantage of keeping and attention. I by no means, however, consider my own experience as conclusive; as I know some who have been more fortunate, and I am myself determined upon further trials.

In the absence of this desirable information respecting the produce of the improved Durham short horns, I shall undertake to give some examples of the produce of our native stock, which are well vouched, and many of which have come under my own observation. They may serve at least as matter of entertainment, if not of useful instruction.

1. A cow owned by C. Oakes, Danvers, Mass., 1816.

In 1813, made	. . .	180	lbs. butter.
1814, "	. . .	300	" "
1815, "	. . .	over 400	" "
1816, "	. . .	484½	" "

In one week this cow produced 19½ lbs. butter,

and averaged sixteen pounds per week for more than three months.

2. A cow owned by —— Nourse, Salem, Mass., 1824, and afterwards by Col Pickering.
This cow made upwards of twenty pounds one week, and averaged over fourteen pounds per week for four months.

3. Cow— —— Wheeler, Framingham, Mass., 1821.
Eleven lbs. butter in one week. 13 beer quarts at one milking.

4. Cow—N. Sanderson, Waltham, Mass., 1828.
Thirteen and one half lbs. butter per week through the season, on an average.

5. Cow—John Barre, Salem, Mass., 1823.
Average yield for two hundred and sixty-eight days, 10¼ beer quarts per day.

6. Cow—John Stone, Marblehead, Mass., 1823.
From June to October, averaged eleven pounds of butter per week.

7. Cow—Luke Fish, Waltham, Mass, 1824.
Made 12 lbs. butter per week.

8. Cow—Geo. H. Hardy, Waltham, Mass., 1826.
Averaged, for four months, eleven pounds and three quarters per week.

9. Cow—Rev. Jno. White, Dedham, Mass., 1826.
Gave 12 lbs. butter six weeks in succession—one week 12 lbs. 13 oz.—3 months averaged 10½ lbs. per week—gave 18 qts. milk per day at times.

10. Cow—N. Pierce, Salem, Mass., 1826.
3,528 qts. of milk per year—nearly 10 qts. per day.

11. Cow—Jas. Robbins, Watertown, Mass., 1827.
May and June, from 10 to 13 lbs. butter per week.

12. Cow—Ralph Haskins, Dorchester, Mass., 1827.
18 qts. per day—average 14 to 15 qts. Before grass feed in April, the cream of two days made 2¼ lbs. butter, and was made from 2 1-16 qts. of cream. Two or three minutes in churning.

13. Two cows—Rev. Mr. Phenix, Chicopee, Mass., 1828.
For several weeks averaged 20 lbs. per week, besides what milk and cream were used in the family.

14. Cow—E. Harris, Moorestown, N. J., 1829.
32 qts. per day—supposed wine qts.—feed, good pasturage.

15. Cow—Jeremiah Stickney, Rowley, Mass., 1829
19 qts. daily—calf, at six weeks old, 196 lbs.—gain 2 3-7 lbs. per day.

16. Cow—W. Chase, Somerset, R. I., 1831.
Most of the season, 20 qts. of milk daily—averaged nearly 14 lbs. of butter per week during the season—120 lbs. made in ten weeks.

17. Cow—Israel Graves, Northampton, Mass., 1830.
Four years old—one week, 13 lbs. 9 oz. butter.

18. Cow—Isaac Osgood, Andover, Mass., 1831.
17 quarts milk per day—50 lbs. butter in the month of June.

19. Cow—L. Hosmer, Bedford, Mass., 1830.
14 lbs. of butter per week.

20. Heifer—2-3 years old—L. Hasseltine, Haverhill, Mass.
14 lbs. of butter one week—18¼ lbs. in 10½ days.

21. Cow—Saml. Noah, Danvers, Mass., 1831.
In 148 days from 2d May, gave 587½ gallons milk—more than four gallons per day, beer measure.

22. Cow—Timothy Flanders, Haverhill, Mass., 1832.
From 20th April to 22d Sept., besides 46½ galls. milk for family use, made 163 lbs. 4 oz. butter.

23. Four cows—Jesse Putnam, Danvers, Mass., 1830.
Averaged more than 200 lbs. butter each in the season—highly fed.

24. Six cows—J. Curtis, Marblehead, Mass., 1830.
Average over 181 lbs. butter each, without extra feed.

25. Cow—S. Sergeant, Stockbridge, Mass., 1831.

From 8th April,	1828,	321 days,	381 lbs.	6 oz.
16th "	1829,	284 "	298 lbs.	1 oz.
5th "	1830,	306 "	318 lbs.	10 oz.
		911 days,	943 lbs.	1 oz.

The above is exclusive of 25 lbs. 9 oz. made while fattening 3 calves, and furnishing a family of four persons with milk and cream.

26. Cow—W. Dickinson, Deerfield, Mass., 1830.
One week, 14 lbs.—first eight weeks after calf was taken away, made 96 lbs. Six quarts of milk made one pound of butter.

27. Cow—H. G. Newcomb, Greenfield, Mass., 1830.
From March 27th to May 25th, made 100 lbs. of butter, and reserved 160 qts. of milk.
In 14 days, made 29 3-16 lbs. of butter.

28. Cow—D. Wait, Greenfield, Mass., 1830.
In one fortnight, made 25 lbs. of butter.
In May, 1832, she produced in one week 15¼ lbs. of butter. Average daily weight of milk, 47 lbs. Measured one day 26 beer quarts.

29. Two Cows—Hart, Shelburne, Mass., 1834.
Besides milk and butter used for a family of 3 persons, they sold from these two cows last season upwards of 400 lbs. butter—feed, grass only. In June, she made in one week 23 lbs.—one week 25 lbs.—one week 28 lbs.

30. Cow—Barrett, Northampton, Mass., 1830.
This cow milked, for one fortnight, every eight hours—at each milking has yielded a pailfull holding ten quarts—the weight of the milk averaging daily 49½ lbs. Her milk has yielded daily 2 lbs. 5 oz. butter—making 32 lbs. 6 oz. in 14 days. From one milking alone 1 lb. 6 oz. were made, which will give 4 lbs. 2 oz. of butter in one day from one cow—the butter was of a superior quality, and brought a high price in this market.
[*Northampton Courier, June*, 1830.]

31. Cow owned in New-London, Conn., yielded 10 quarts milk per day for 14 successive months.

For the 30th example I have only the authority quoted, which I have no reason to doubt. Most of the others have been authenticated under oath; and most of the cows and the owners I have seen.

I have already, Mr. Editor, extended this communication to an inordinate length. I shall leave it for the present, without farther comment; and only add, in behalf of myself and the whole agricultural public, that the respected and liberal gentlemen, owners of the improved Durham stock, will confer a great obligation, and add to their patriotic services, if they will favor the public with as exact and full statements, from their own actual experiments, of the dairy produce of their beautiful and valuable animals.

H. C.

Meadowbanks, 8th Feb., 1835.

Miscellaneous Collection of Facts and Opinions. By S. F. [For the New-York Farmer and American Gardener's Magazine.]

Butter.—There are three requisites in producing an easy separation of cream—the milk should have a large surface, be kept perfectly still, and at the temperature of 54 to 56 degrees. If desirous of obtaining all the cream, the milk should not be skimmed as soon as it curdles. The best butter, however, is made from the cream that rises first. If the room containing the milk is too warm in the hot season, the floor should be often washed, and salt occasionally sprinkled over it. The sooner the cream is churned the better will be the butter, and the less the latter is washed with water, the more delicate and pleasant will be its flavor. In the fall and winter, Mr. W. Allen, of North Andover, obtains butter by churning ten minutes. He raises his cream to 72 or 73 degrees.

Cut Straw for Horses.—At this season of the year, horses that are used much, or that perspire freely, are apt to take cold, and become hide-bound. They require once or twice a couple of table spoonfuls of sulphur mixed with their food, which should be of cut straw, and corn and cob, and oats, ground together. If well curried, their skins will soon be loose, and they will begin to thrive immediately.

Hay on Barn Floors.—When hay, particularly clover, is thrown on the floor, much of it, and the most valuable part, too, breaks and crumbles into so small pieces, that the fork will not take them up. In most barns, this is entirely wasted or shoved out into the yard, where but comparatively little of it is picked up by the stock. "I," says an aged farmer, "keep my barn floor as clean as my wife's parlor, and every day shovel into an old sleigh or box, which I keep standing by, all the leaves, seeds, and fine parts of the hay. This makes superior feed for my cows: if moistened with water, and a small quantity of bran or meal added, and given about the time of calving, nothing appears more nourishing to them.

Stone Wall for Sheep.—A farm well fenced with stone is much more valuable than one with rails, even if suitable timber grows on the farm. There is, however, one drawback. One unruly sheep will take a flock over a whole farm, and soon learn them to skip over the best of wall fences, with so much ease that it is impossible to keep them, except where they are disposed to remain. Some farmers have been obliged to abandon sheep husbandry on this account. If the stone wall is high, and well faced, and the pasture good, sheep may often be kept without much inconvenience or damage. Ordinary stone fences, with a top rail, will not prevent unruly sheep from scaling them. They will approach the fence in an oblique direction, and skip over it with the ease of a deer. If the top rail is made to project over towards the field in which the sheep are, it answers a much better purpose. The best top rail is red cedar, with all the limbs left on to the length of two feet. If two fields are fenced in this manner a farmer need not be troubled with unruly sheep. Alternating them in these lots will ever afford good pasture, and enrich the ground.

Stockings.—Those made of common wool are said to be more durable than from Merino wool.

Morus Multicaulis.—Seeds of this plant have been sown in this country, in the vicinity of Northumberland, Mass., I think. Perhaps some reader of the New-York Farmer will state the result in reference to this plant being a mere variety. It is the opinion of the French Royal Society of Agriculture that it is not a distinct species—that its seed will not produce its like—that it cannot be preserved except by propagating it by layers, cuttings and grafts—and that it is exclusively by these means that the Chinese have reared this plant from time immemorial.

Eclipse of the Sun—Cold Winter and Hot Summer.—There is a saying among farmers that great extremes of the seasons follow an eclipse of the sun. The severity of the weather in the early part of January will confirm the opinion; and should we have excessively hot weather the succeeding summer, this opinion will be entertained at least one century longer,

whtaever may be the facts brought to light. Observation and science may yet discover the cause of such a very great extreme of weather as has occurred this winter.

CLOVER WITH OATS.—Many of the farmers in West Chester and Putnam counties sow clover seed with their oats—think it takes better than with rye or wheat. The ordinary rotation in most parts of this section of the Union is corn, oats, rye, or wheat with clover. In order to secure the enriching properties of clover, I should suppose, even in this rotation, it would be profitable to sow clover with a view of turning it under for rye or wheat in the fall. The expense of seed and sowing is but a trifle. The pasture, from the time the oats are cut to that for fall ploughing, will pay for all expenses.

PLASTER OF PARIS.—At the distance of fifteen miles from the city, on the banks of the Hudson, gypsum answers a very good purpose on clover; and yet salt water ascends near a hundred and fifty miles above this. On Long Island, it is supposed not to succeed on account of the proximity of salt water.

STONES ON TILLABLE GROUND.—It is the practice of most farmers to pick the stones off their fields after they are laid down to grass the spring prior to mowing. Is it not better to carry them off when putting in the seed, and prior to the last harrowing. By thus doing, grain and grass will grow in the places occupied by the stones; and these are often very considerable portions of the surface. At this time there is no difficulty in getting up the stones. Last fall, I sowed five acres of stony ground with wheat and rye, and picked off all the stones after the seed was sown, and before the harrowing was finished. The appearance of the field was very much improved.

GROUND FEED FOR STOCK.—In that portion of West Chester county bordering on the Hudson, not one farmer in twenty feeds his horses and cattle on whole grain. The grist-mills in the vicinity are furnished with corn and cob crackers. The farmers send oats and corn in the ear in the proportion of about three of the former and one of the latter. After the corn and cob are cracked, the product is put with the oats, and passed through a set of stones expressly for the purpose. The miller takes about one-tenth as a toll. The remainder turns out not far from one-third more bushels than there were in the unground state. One peck of this meal put with cut straw will make a full mess for three horses and a pair of oxen. If the unground corn and oats that produced this peck were given to the same number of horses and oxen, it would scarcely be a mouthful a-piece, and would pass through them not half digested. If the millers about the country would supply themselves with corn and cob crackers, they would soon find business. With one of Greens' straw-cutters, I cut up all the hay I feed out to two horses, five cows, and a pair of oxen. The cut hay for the cows and oxen is now merely wet with water; and for horses a little corn cob meal is added to the hay. The labor of cutting is comparatively light—one man being enabled to cut enough for the above stock in 10 or 12 minutes. Scarcely a straw is wasted. [For a drawing of this machine see last number of the Farmer.]

On Agriculture. By H. C. [For the New-York Farmer and American Gardener's Magazine.]

Agriculture, as the great source of human subsistence and the basis of all the arts of life, has the strongest claims upon the attention of intelligent and patriotic minds. The United States of America are destined to become pre-eminently an agricultural nation. Commerce and manufactures will maintain their proper rank; but agriculture is the transcendant interest. The resources of the country are absolutely immense and incalculable; but it is not my design at present to dwell upon them. Commerce and manufactures encourage and stimulate their development; and a wise and magnificent system of internal improvements lends a powerful aid by bringing the different parts of the confederacy into intimate competition and rivalry; and furnishing the means of conveying the produce of the country at once into the great mart of the world.

Agriculture, as an art, though very imperfectly practised, and, as a science, still less perfectly understood, has yet not failed to engage the attention of many minds among us of the highest order; and though what is contemptuously called book-farming has been ridiculed by the ignorant and prejudiced, and we are happy to say by no other persons, yet it will be gratifying to the inquisitive to know how much has been done for agriculture, even in this youthful republic, by means of the press. I shall therefore give a list of the works which have been published in this country on the subject; and almost all of them of an original character. The list must of course be very imperfect; but it will at least show that the pens of many of our best cultivators have not been idle nor useless. Those which I shall enumerate have all come under my notice to a greater or less extent; and almost all of them are in my possession. There are doubtless many of which I have never heard; and the agricultural public will feel indebted to any gentleman who will, through the medium of the Farmer, enlarge the catalogue, by works which through ignorance or inadvertence I may have omitted.

The first agricultural work published in the country was Essays on Field Husbandry, by Jared Eliot, minister of Killingworth, Connecticut. The preface is dated 1747. It was published in Boston in 1760. A second edition was published in the papers of the Massachusetts Agricultural Society in 1811. It is a sensible, practical, and valuable work.

The next publications are those of the Massachusetts Agricultural Society, which was incorporated in 1792. Their first publication was issued in 1793; and was entitled "Laws and Regulations of the Massachusetts Agricultural Society, with some interesting Extracts from foreign and domestic Publications. By the Trustee." They published a collection of Papers on Agriculture annually for several years; until at length their publications became more frequent, under the title of the Massachusetts Agricultural Repository, which has been discontinued for some time. The collection in my possession consists of ten thick octavo volumes; and embodies much interesting and highly valuable information.

The Philadelphia Society for promoting Agriculture was established in 1785. The first volume of their Memoirs was published in 1808; the last in 1826. They consist of five volumes 8vo; and are full of experimental and useful instruction.

The Pennsylvania Agricultural Society, under the auspices of John Hare Powel, Esq. to whom the agricultural public are largely indebted, have published two octavo volumes; the first in 1824, entitled "Memoirs," &c.; the second in 1827, entitled "Hints to American Husbandmen;" both of them embellished with valuable plates, and filled with important matter.

The Society in the State of New York for the Promotion of Agriculture, Arts, and Manufactures, issued four quarto volumes of "Transactions;" the first in 1792, the fourth in 1799,—highly honorable to the gentlemen concerned in them, at the head of whom was Chancellor Livingston.

The Board of Agriculture in the State of New York published three octavo volumes of Memoirs; the first in 1821, the third in 1824. They were printed and generously distributed at the expense of the State. I consider them as absolutely invaluable; and as having rendered the highest service to the agricultural community.

The Albany County Society likewise published some Agricultural Tracts, of which I am in possession of two numbers; whether others were published I have not been able to ascertain.

The Essex Agricultural Society in Massachusetts have published thirteen octavo pamphlets; the first in 1818, the last in 1834. They contain several valuable papers; useful and interesting reports of farms and stock; some addresses from Col. Pickering, an intelligent, enthusiastic, and practical farmer, well known to the agricultural community; and other communications of which we leave others to speak.

These comprise all the reports of Agricultural Societies in the country which have been given to the public in a pamphlet or book form, of which I am in possession; though I believe an Agricultural Society, both in New-Hampshire and Connecticut, have issued some publications. Of course I do not include the publication of mere anniversary addresses, though some of them have great value.

Of single publications by individuals we have had a respectable number, and most of them highly deserving of attention. I will proceed to enumerate those which have come within my knowledge. I have

mentioned above, Eliot's Essays; next followed,

The New England Farmer or Georgical Dictionary, by Samuel Deane, D. D.

The date of the first publication I cannot ascertain. The second edition was published in 1797. The third under the editorial care and emendation of Thomas G. Fessenden, learned in the science, in 1822.

The Experienced Farmer, by Richard Parkinson of Doncaster, Eng., Philadelphia, 1799, 2 vols. 8vo.; and a Supplement on Turnip and Pea Fallows, printed in Washington city, 1801. This man's works, for I have likewise his Treatise on Live Stock, published in London, seem to me to deserve little confidence.

The Rural Socrates, or the History of Kliyogg, a celebrated philosophical Swiss Farmer, was republished in Hallowell, Maine, in 1800, under the care of Benjamin Vaughan, LL. D., formerly member of the British Parliament; and with notes from the pen of this most learned and excellent man. All I shall say of this work at present, is, that for its practical utility, as presenting a most admirable example of industry, economy, perseverance, decision, and good sense, and for its fine moral tendency, it is not surpassed by any book that I have ever met with, saving of course that with which no other is to be put in comparison.

Essays and Notes on Husbandry and Rural Affairs, by I. B. Bordley, 8vo. The date of the first publication not ascertained; mine is the second edition, 1801.

The Pennsylvania Farmer, a selection from the most approved Treatises on Husbandry, by Job Roberts, 12mo. pp. 224, published in Philadelphia 1804.

The American Gardener's Calendar, by Bernard McMahon, 8vo. pp. 648, Philadelphia, 1806.

Forsyth on Fruit Trees, republished about the same time.

A Complete Treatise on Merinos, by Mr. Tessier, 8vo. pp. 175, 1811.

Every Man his own Cattle Doctor, by Francis Clater, 12mo. pp. 256, Philadelphia, 1815.

Elements of Agricultural Chemistry, by Sir Humphry Davy, republished in Boston, 1815, 8vo. pp. 406.

The Code of Agriculture, by Sir John Sinclair, 8vo. pp. 424, republished at Hartford, Connecticut, 1818, with valuable notes by the American Editor.

Arator—a Series of Agricultural Essays, 12mo. pp. 239, Petersburg, Virginia, 1818. Mine is the sixth edition. It was first published about 1800. It is a work highly esteemed, and has had great influence.

The Farmer's Assistant, by John Nicholson, 2d edition, 1820, Lancaster, Pennsylvania. A work of decided merit and highly recommended.

Treatise on Agriculture, by a Practical Farmer, (understood to be the Hon. John Armstrong,) Albany, 1820, 8vo. pp. 168. A compendious view of the subject; of first rate excellence.

Husbandman and Housewife, being valuable directions in Agriculture and Domestic Economy, by Thomas G. Fessenden, Bellows Falls, Vermont, 1820, 12mo. pp. 190.

The Farmer's Manual, by Frederick Butler, Wethersfield, Connecticut, 1820, 12mo. pp. 224. A practical and useful work.

Willich's Domestic Encyclopedia—first American edition, edited by James Mease, M. D.; 2d American edition, by Thomas Cooper; in three vols. 8vo. reprinted in Philadelphia, 1821. A work highly useful.

The American Orchardist, by James Thacher, M. D., Boston, 1822, 8vo. pp. 226.

Letters of Agricola, by John Young, 8vo. pp. 462, Halifax, Nova Scotia, 1822.

These letters were first published in the Acadian Recorder, in weekly numbers, and the author's name concealed. Their effects in the Province, and the strong interest which they excited, were very great. They were afterwards republished in a volume. Tho' in a British Province, they properly belong to American agriculture. They are written in a highly interesting style, are full of information, and display great learning and power.

Nature and Reason Harmonized in the Practice of Husbandry, by the late John Lorain, Philadelphia, 1825, 8vo. pp. 563. This book is full of good sense and practical information, delivered in a verbose and repulsive style; but there is no book on the subject, with which I am acquainted, more deserving of the attention of an intelligent and practical farmer.

Compendium of Cattle Medicine, by James White, 12mo. pp. 233. Republished from the English edition in Philadelphia, 1827.

Manual on the Mulberry Tree, by James H. Cobb, 12mo. pp. 68, Boston, 1831.

Essay on Calcareous Manures, by Edmund Ruffin, Petersburg, Va., 1832. 12mo. pp. 242.

Treatise on Poultry, Cows, and Swine, by B. Moubray. Re-printed from the sixth London edition, and adapted to the United States by Thos. G. Fessenden, Editor of N. E. Farmer. 12mo. pp. 266, Boston, 1832.

The Complete Farmer and Rural Economist, by Thos. G. Fessenden, 12mo. pp. 374, Boston, 1834. The established and known competency, ability, and industry of the author of this work, are a sufficient guarantee of its merit and value.

The Congress of the United States have likewise caused to be printed and distributed through the country two valuable Treatises on the Cultivation and Manufacture of Silk, and one on the Cultivation of the Sugar Cane.

To the above are to be added a work on Apples and Fruit, called, I think, American Pomology, and published in Philadelphia with beautifully colored plates—the author to me unknown; and some works of Mr. Wm. Prince, Long Island, and Mr. John Kenrick, of Newtown, Mass., on the Grape, and other subjects of Horticulture, of which, as I have never had the pleasure of meeting with them, I am not able to speak.

There are likewise the Agricultural Works of William Cobbett: his edition of Tull's Horse-Hoeing Husbandry, published in New York; his Year's Residence in America; his American Gardener; and his Cottage Economy, which has been re-published here. The style of Cobbett for clearness, animation, and power, is not surpassed by any writer in the language. He gives much good advice and many valuable directions, but little reliance can be placed upon his bold and extravagant assertions. His work on the cultivation of Indian Corn, published in England, with a title page of paper made from the husks of the plant, is an exceedingly amusing and piquant treatise.

A New System of Shoeing Horses, by Joseph Goodwin, was re-published in Boston, 1821; with notes and additions, by John B. Brown, M. D., 12mo. pp. 139.

The Gentleman's Pocket Farrier; reprinted from the English copy in 1832. Boston, 18mo. 34.

I cannot have a doubt that the above list is very imperfect, but it will show at least something of what has been done in the country, and it may assist and induce others to endeavor to render it more nearly complete.

I proceed next to enumerate the periodical Publications in Agriculture, which are issued in a weekly, monthly, or quarterly form, for the instruction and animation of the agricultural community.

First in order was the American Farmer, published weekly in Baltimore, and edited by John S. Skinner. This work is still continued under a new editor. I am not able to ascertain the date of its commencement, but it must have reached its eighteenth year. In 4to., 8 pages.

The New England Farmer. Edited by Thos. G. Fessenden. Boston, 4to., weekly, 8 pages. Now in its XIII vol.

The New York Farmer. Edited by Saml. Fleet. Monthly, 32 pages. New York. In its VII vol.

The Genesee Farmer. Edited by Luther Tucker. Weekly, 8 pp. Rochester, N. Y. In its IV vol.

Goodsell's Genesee Farmer.* Edited by N. Goodsell. Weekly, 8 pp. Rochester, N. Y.

Maine Farmer. Winthrop, Maine.

Cultivator. Albany. Monthly, 16 pages. J. Buel, J. P. Beekman, and J. D. Wasson.

Farmers' Reporter. Cincinnati, Ohio. It has undergone various mutations in form—8vo., qto., now folio; monthly.

Northern Farmer. Newport, N. H. Once a fortnight, 8 pp. qto. Now extinct. 2 vols. published.

Southern Agriculturist. Monthly, 8vo. Charleston, S. C.

Ohio Farmer and Western Horticulturist. Batavia, Ohio.

Southern Planter. Macon, Georgia.

Farmers' Register. Edmund Ruffin, Editor. Richmond, Va. 8vo., monthly. Now in the second volume. To this intelligent farmer the public are under great obligations for an able Essay on Calcareous Manures, mentioned above.

There is a "Farmer and Gardener" in

*This work was discontinued in October last.—[D.K.M.]

the German language, published at Wilkesbarre, Penn.

To these are to be added the Quarterly Journal of Agriculture, Mechanics, and Manufactures, published in New York, by Minor and Challis, in large octavo, 250 pages each number, and abounding with drawings and models in the arts.

The Plough Boy was for some time published at Albany, N. Y., and the American Farmer's Magazine at Washington, but the latter it is believed never lived beyond the first number.

Besides these, many of the country newspapers devote a considerable portion of their papers to agriculture; and the most valuable articles in the agricultural journals are copied, and in this way spread over the whole country.

Two Horticultural journals have recently made their appearance in Boston, in very handsome dress. One, the American Gardener's Magazine, conducted by C. M. and P. B. Hovey; and the other, the Horticultural Register and Gardener's Magazine, edited by Thos. G. Fessenden, both monthly, 8vo., and containing about 40 pages each.

Such is the condition of *Book* Farming in this country. Many of these publications, through the kindness of their Editors or Publishers, to whom I beg leave in this form to tender my thanks for a gratification which otherwise my limited means would not have allowed me to enjoy, have come under my inspection; and they are highly creditable to the ability, intelligence, enterprize, and industry, with which they have been conducted.

To these publications, to the Agricultural Societies, and the Cattle Shows in different parts of the country, are due almost entirely the great improvements which have already taken place and are daily going on in this art of arts, an art so essentially connected with the general comfort and welfare. It was the advice of the celebrated Bakewell to a farmer, who wished to improve himself in his profession, "to go from home and see what other people are doing." The general circulation of these journals and publications enable us to do this without the trouble and expense of going from home. Besides this, they lead to a healthy competition, from which the best advantages arise, a competition in which no ill feelings can originate, and in which a man cannot fail, without securing to himself advantages which more than compensate for the trouble. They have led likewise to many valuable experiments; and what is of the highest importance, to exactness in those experiments. If now a man undertakes to say what he has done, he is at once called upon to state *how* it was done, and to detail the various steps in the process; if he now boasts of his crops, he is expected to be able to state precisely how much those crops measured or weighed; upon what extent of land, and at the cost of how many days' labor, and how many loads of manure, they were cultivated and harvested. This is of great advantage to the public, and of not less to himself; it induces him to bring all his farming operations to their proper test of profit or utility; it compels him to keep accounts, and besides the real gratification which a careful man always finds in such exactness, it is commonly of serious importance to his own respectability and honor. The senseless prejudice against what is called book farming, will find no shelter in a truly intelligent and liberal mind. To farm by mere theory, without any practical skill or observation, would be the work only of *a child or a fool;* but to gather light from experience, to know what others have done, to see how they have done it, and to listen to the counsels of reflecting and practical men, in a matter where all that we know must be the result of experiment, is equally the dictate of wisdom and common sense. Even the deriders of all book knowledge, the conceited Know-alls, a pretty numerous family, who know every thing by intuition, will often undertake to tell you what they do, and what neighbor B. has done, and what neighbor A. formerly did, and with great self-complacency chuckle over their successes; now, to say the least, would it not be equally instructive, if all this sage experience could be "put down in black and white," and verified upon oath, where there would be every motive to exactness, no escape from the responsibility of the statements; and where it would be perfectly convenient at our leisure to examine and review the testimony. To a very good and serious neighbor, who one day undertook to deride me as a book-farmer, I took the liberty to put the question, what sort of a Christian he was: whether he was a book-Christian or not; or whether he took that also the natural way, as he did the rest of his knowledge. I shall add nothing of the value of the press in diffusing this information. The press is the greater preventer of all monopolies. It permits nothing to be appropriated or concealed. Like the inundation of one of our great rivers, it fertilizes at once a vast territory. Like a beacon light on a high hill, it throws its rays in all directions, and to a great distance; or rather, like the rising and glowing sun, it awakens and illuminates a whole hemisphere. H. C.

Meadowbanks, 27th Jan., 1835.

A Hint for Farmers—Directing Workmen. By A. EDGAR. [For the New-York Farmer.]

MR. FLEET,—It is justly observed, that the right ordering of servants and work people is a difficult branch of moral duty, and an important one to the farmer. They require to be treated according to their respective merits, encouraging good ones by extra wages, or other rewards. Some men are worth double the wages of others, yet custom makes no distinction between them in this respect; hence the propriety of engaging the best workmen the country affords, and retaining them by civil treatment and suitable engagements. The farmer should make it a standing rule in the ordering of his workmen, never to find fault without occasion, nor to commend without reason. Good fellows will not brook the former, nor will bad ones be mended by the latter. Much of the smoothness and uniform success of business depends on the manner of communicating orders to workmen. If orders are loosely or inaccurately given, it is unreasonable to expect that the execution of them should be faultless. It is difficult to explain business in words with sufficient accuracy to rustic workmen. The farmer, therefore, should make it a point to give orders on the spot, and to the men whom he means shall execute them; then he can explain himself to them intelligibly and fully, or assist them in marking out their work; there is always danger in merely verbal orders, and in a message certain mischief. Some farmers have the idea, that any man, no matter whether he knows any thing about the work that is to be done or not, is capable of carrying orders from them to their workmen, which is to my own experience a very great mistake. No man is capable of carrying orders to workmen, unless he is well acquainted with the work himself; therefore, the farmer should make it a constant rule, to set his men to work in person, and to stay by them, or direct with his own hands, and return to them again and again, until he finds them completely in their work. In this view, as well as for other reasons, the farmer should be master of every implement, tool, and operation belonging to his profession; or how is he to correct a bad workman, or to know when to be satisfied with a good one, who, knowing when he is right, will not bear the reproaches of ignorance. He has no other way of securing the esteem and attachment of a good workman, and of finishing in a workman-like manner every thing that he undertakes, than by making himself master of his business; but I am sorry to say, such farmers are thinly sown in this vicinity.

Mr. Editor, I will give you a few hints in regard to farm servants. You are well aware, I have no doubt, that it has been in general too much the practice to despise and depress the habits and talents of this most valuable class of society, and by such means the necessary ardor and spirit of exertions are much abated, and the improvement of husbandry greatly retarded. For not only the art of the farmer, the general directions of the operations of husbandry, but many inferior branches of labor, require much more skill and experience than the greater part of mechanic trades. The man who works upon brass and iron, works with instruments, and upon materials of which the temper is always the same; but the man who ploughs the ground with a team of horses or oxen, works with instruments of which the health, strength, and temper, are very different upon different occasions; the conditions, the materials which he works upon, too, are as variable as that of the instruments he works with, and both require to be managed with great judgment and discretion. The common ploughman, though generally regarded as the pattern of stupidity and ignorance, is seldom defective in his judgment and discretion; he is less accustomed, indeed, to social intercourse

than a mechanic who lives in town; his voice and language are more uncouth, and more difficult to be understood by those who are not used to them; his understanding, however, being accustomed to consider a great variety of objects, is generally much superior to that of the other, whose attention from morning to night is commonly occupied in performing one or two simple operations. How much the lower ranks of people in the country are really superior to those of the town, is well known to every man whom either business or curiosity has led to converse much with both. In China and Hindostan, accordingly, both the rank and wages of country laborers are said to be superior to those of the greater part of artificers and manufacturers. They would probably be so every where, if corporation laws and the corporation spirit did not prevent it. There can be no doubt of the vast utility and national advantage of promoting the spirit and encouraging the exertions of the laborers in agriculture. However the benefits of commerce may be estimated, it is only the raising of the necessary food for the support of the population of a nation within itself, that can render it truly great, happy, and independent.

A. Edgar.

Hartford, Conn., Jan. 22, 1835.

Produce of a Small Farm. By H. C. To the Editor of the New-York Farmer.

Mr. Editor,—I procured from an esteemed neighbor, Mr. Horatio Hoyt, the subjoined account of the produce of three and a half acres of land in Deerfield, Mass., in 1833, a result highly creditable to the cultivator and the soil; and which, I presume, will be interesting to some of your readers. We do not say that it is more than others have done or can do; very far from this; but we hope it may induce others to say what they have done or can do, for such communications cannot fail to be interesting and useful to the agricultural community. The produce is estimated at the market prices at the time.

Yours, respectfully,

H. C.

Hay, 3½ tons, at $12 per ton,	$42 00
Wheat, 11 bushels, at $1 50 per bushel,	16 50
Stubble and clover, 1 ton,	4 00
Corn fodder, stalks, blades and husks, 3 tons,	10 00
Corn, 120 bushels, at 80 cts.	96 00
Potatoes, 117 bushels, at 20 cts.	23 40
Apples, 60 bushels, at 12½ cts.	7 50
Pumpkins, 1 cart load,	
	$199 40

Surinam Potatoe. By Alex. Edgar. [For the New-York Farmer.]

Mr. Fleet,—Among the many excellent varieties of potatoes cultivated in America, the yam, or Surinam potatoe, is not to be found. It has been long known in Scotland, and cultivated to a great extent for the purpose of feeding cattle. The produce is from 15 to 20 tons per Scottish acre. It is an excellent substitute for turnips in the spring of the year, when turnips are done. It will grow on soils too that the common turnip and ruta baga would not yield roots exceeding a common sized egg. Yams present every advantage which can be got from ruta baga, and are not so pettish in their growth. Their culture is a matter of far less difficulty, as such will grow upon soils where ruta baga would starve. They require less manure, and may be planted as late in the season as the others, thereby enabling the farmer to bestow the like previous preparation upon the ground, the want of which is a general argument against ordinary potatoe husbandry. If you think the above lines worth a place in the Farmer, they are entirely at your service. I have read your Farmer seven years, with the greatest of pleasure and profit too; and was it in my power, there should not be a farmer nor a gardener in the Union who should not have it in his possession; for without reading, a farmer may plough and mow, and a gardener may dig and hoe, to the end of their existence, and then know but little of the art of their profession.

Alex. Edgar.

Hartford, Conn., Jan. 22, 1835.

A Substitute for the Lima Bean. By Wm. Prince & Sons. [For the New-York Farmer.]

Dear Sir,—We think the point has at length been attained of obtaining a substitute for the Lima Bean, suited to a more northern climate than that very tender variety. The *Prolific Lima* is of recent introduction, and not having been cultivated beyond the limits of two or three gardens, is absolutely unknown to the American public. It is white, or rather cream-colored, nearly the size of the Small Lima, but exceeding it in thickness, and has a peculiarly rich appearance, which is verified by its quality. It fully equals, and it is even contended that it excels, both the other Lima varieties in richness; is at least two weeks earlier, and its produce is far greater, we think we may say four-fold. Like the Lima, it is used as a shell bean, and we think, from its various advantages, it promises to rival that variety even here, and to supersede it in more northern latitudes. We do not invite applications for it, having only a small supply of two bushels, but in the autumn of the present year all applicants can receive such quantity as they desire. The Dwarf Bonavista Bean also deserves particular notice for its remarkable richness and delicacy, and may be considered as holding the same rank in this respect among the dwarf or bush varieties that the Lima does among the climbers; it is also exceedingly prolific.

We intend, in a future communication, to mention the public spirited individual to whom our country is indebted for the introduction of the Prolific Lima Bean, and other very choice horticultural productions, in a manner better calculated to do him justice, as a *public benefactor*, than we could possibly do in this short article. Yours, very respectfully,

Wm. Prince & Sons.

Linnæan Botanic Garden, Flushing, Feb. 2, 1835.

Food of Plants. By Alex. Edgar. To the Editor of the New-York Farmer, and American Gardener's Magazine.

Mr. Fleet,—Though agriculture is an art which has been carried on from the earliest ages by a greater number of people than are concerned in any other, yet, even at this advanced period, the agriculturist may, in some measure, be viewed as remaining without any fixed principles for governing his mind, and regulating his practice. Instead of resorting to practice, and thence forming a satisfactory theory, writers on agriculture have in numberless instances amused themselves without instructing their readers, by presenting opinions purely speculative upon this important subject, not reflecting that every kind of theory which is not built upon extensive practice and observation is preposterous and absurd. According to the mode adopted by these gentlemen, he who argues most ingeniously must necessarily be received as coming nearest to the truth, and his doctrine be considered as the standard, till some competitor appears, whose eloquence is more persuasive and whose opinions are more plausible. This has been the fate of all speculative opinions since the earliest ages, and will continue to be so upon every subject where no certain data can be found to direct the research of inquirers; for instance, how numerous and diversified are the sentiments of theorists concerning the food of plants, &c.: a subject not to be comprehended by the human mind in its present state, and upon which the wisest of men have done little more than display their presumption and their ignorance. It is a fact, that the most acute philosopher can no more account for the germination of a single grain of corn, than he can explain the mysterious manner in which he enjoys rational existence. Without, therefore, stopping to inquire, whether fire, or air, or water, or earth, constitutes the food of plants, or noticing the numberless hypotheses that have been presented on that abstruse topic, it may be remarked, that the dullest farmer knows sufficiently that if he cleans, drains, and manures his land in proper manner, it will yield him as good a crop as the soil is constitutionally capable of producing, provided physical circumstances, such as heavy rains, excessive droughts, furious winds, and similar evils, do not intervene and prevent nature from performing her usual functions, and returning a crop equal to the trouble and expense bestowed in cultivating it. Allowing for a moment that we were able to ascertain which of the above elements constitutes the food of plants, the question, *Cui bono?* still remains to be answered, as we have neither the command of fire, air, or water, nor can order the sun to display his beams, the air to blow genial gales, or the clouds

to drop refreshing showers. Little benefit would accrue, were even the curtain of nature withdrawn, and our eyes allowed to roam at large over a field which may justly be considered as forbidden to man. Under these impressions we are disposed to consider disquisitions respecting the food of plants, and even concerning the principles of vegetation, as quite foreign to farmers. ALEX. EDGAR.

Hartford, Conn., Jan. 22, 1835.

REMARK.—We dissent from the positions of Mr. Edgar.—[S. F.]

On Chess. By FARMER C. [For the New-York Farmer.]

MR. EDITOR,—In looking over old papers not long since, I was somewhat pleased with a description of the plant commonly called "chess," by a New-England farmer, in some of the last numbers of the fourth volume of the New-York Farmer. I here give a contrary opinion to his.

The vulgar opinion respecting the origin of the chess plant is too well known to need at this time a particular account. It may not be generally known, that many farmers are quite indifferent about its being mixed with seed wheat or rye, asserting that it is not produced by its own seed. When error of opinion results in a practice so absurd, it is time for those who know better to enter a protest. It is frequently inquired, if chess does not come from wheat, why do we find it on new ground where wheat is the first crop, and where chess has never been sown? It is a circumstance familiar to all who are acquainted with clearing land, that in places where fire passes over the ground, many plants spring up and grow spontaneously, and where log-heaps have been burned, we have frequently seen the earth entirely covered with sumach (*Rhus tyhinum*), and fire weed (*Senecio hieracifolius*). Now, chess, when mixed with wheat, is extremely deceitful, and we conclude it may either have been sown unperceived with the grain, or it may have been scattered by birds, or otherwise. This seed is so small as to render its detection, to a careless observer, improbable. It is true, botanists have given us a list of hybridous plants, but the chess has not suffered the disgrace of being placed on the catalogue; nor is it pretended by the advocates of this belief, that seed-wheat, from which this monster is said to rise, is guilty of vegetable adultery. They admit that the wheat plant may rise perfect from the ground, but after being injured by cattle or unfavorable situations, its *nature* becomes changed, and the stalk, instead of being crowned with the golden grain, is only burthened with the shrivelled chess. Now would it not be perfectly safe to assert that nothing analogous to such transformation can be produced from the vegetable kingdom: we here remark, that chess, though a weaker plant than wheat, is yet more hardy, and where that grain is thick and flourishing, the chess drops among the stubble; but when the winter, cattle, or excess of moisture, have injured the wheat, the other shoots forward with renewed vigor, and fills the vacancy. Chess is a perfect plant, as different from wheat as that is from other grain, with seed *completely* capable of vegetating, and known in science by the name of *Bromus secalinus*. Botanists, whose observations are incomparably closer than the asserters of this doctrine, would no sooner admit this plant to be a degeneracy of nature, because it grows in our wheat fields, than the zoologist would admit a goat to be the degenerate offspring of the cow, because they fed in the same pasture.

FARMER C——.

Manllus, Jan. 20, 1835.

Novel, Practicable, and Cheap Mode of obtaining Good Crops of Wheat. By O. P. Q. To the Editor of the New-York Farmer.

MR. EDITOR,—In the Complete Farmer and Rural Economist, recently published in Boston, a work of great merit, the following directions are given for the cultivation of wheat on the authority of John Townsend, of Andover, Conn. We make only a short extract: After a crop of corn, "plough three inches deep, and *spread on evenly four or five inches of well rotted manure*, and sow three pecks of good clean wheat to the acre, and *unless something disastrous happen*, the summer following your garner *may be* filled with the finest wheat."

Now, we ask, very respectfully, of the "editor of the Complete Farmer," to whose authority we have been long disposed to defer, to inform us who is the happy farmer, saving always Mr. Jno. Townsend, of Connecticut, who has manure enough, and time enough to put it on, *to spread evenly four or five inches of well rotted manure* over his wheat fields? and to let us know whether "any thing disastrous" has happened to Mr Townsend since he adopted this very pleasant and feasible operation? This is book-farming with a witness. O. P. Q.

Inattention to Acquiring Reputation by Men hired on the Farm. By S. F. [For the New-York Farmer and American Gardener's Magazine.]

In almost every branch of human pursuit reputation is considered of primary importance. The merchant commences his career with the deepest solicitude for his future standing. He looks forward to it as the means of increasing the efficiency of his capital, sustaining him in times of embarrassment, repairing what under other circumstances would be total and hopeless ruin, and, finally, securing to him the enjoyments of prosperity. The professional man devotes the best years of his youth, and of his early manhood, to intense study, with a view of acquiring a reputation. He regards the character he acquires in his profession as the index of his hopes and fortune. Indeed, he expects to rise to stations of profit, influence, and usefulness, by the favorable estimation of himself among his fellow-citizens. Among mechanics, too, reputation is of great importance, although it is not held up to the imagination of the apprentice as the foundation of his fondest expectations. Indeed, the object of his ambition too generally appears to be manual skill, unconnected with mental culture. Still, as the openings to the superintendence and to the commencement of business are numerous and direct, there are among mechanics excitement and ambition in reference to reputation. Hence the difficulty of obtaining those of this branch of pursuit who are competent to assume the investment and management of capital, is every day becoming less. A truly industrious and intelligent mechanic is almost morally certain, not only of obtaining employment, but of having many opportunities of materially improving his condition.

It is with regret that I am compelled to state, that, as far as my information and experience extend, there is a very great inattention on the part of hired men on farms to the means of qualifying themselves to take the superintendence of farms, and to direct investments of capital in farming operations. Almost universally, they limit their expectations to obtaining from seven to fourteen dollars per month by the year; and for this compensation they expect to perform the customary labor of the farm, directed and superintended by the proprietor. If the owner himself is enabled to be with his men, quite efficient help is obtained. But if his other engagements compel him to hire others to think as well as to labor, to disburse his money, and secure his profits, he will meet with unexpected discouragements and vexations, and with obstacles almost insurmountable. A few days ago, a gentleman, whose business confines him most of the year in the Northern States, wished me to inform him where he could get an active, intelligent man, to take charge of a plantation in the South, mostly devoted to the rearing of the mulberry and silk-worm. I informed him that there were doubtless competent men for the station, yet few or none could be found whose reputation was such that an implicit confidence could be placed in them.

The question arises, to what causes must we attribute this deficiency in farmen? And how shall the evil be remdied?

The immense variety of objects embraced in mixed husbandry, and the great and unremitted care requisite in the management of a farm, have tended to discourage capitalists from embarking in the business. Hence, there has been but a limited call for a class of hired men whose qualifications were greater than those expected by the plain superintending farmer. Indeed, farmers themselves have generally held out no encouragement to their hired men. They have not offered to them double the wages, if they would qualify themselves accordingly. In fact, agriculture has not been conducted with sufficient spirit and enterprise to rear up such a class of men.

The increase of temperance in the use of intoxicating liquors will tend very greatly to remedy the evil, and bring numerous candidates into the field.

The perusal of agricultural periodicals has a very direct and happy tendency—awakens and excites strong desires to establish a character that will insure greater rewards. Every farmer should take an agricultural paper, and cause his hired men to read it regularly.

Lyceums, reading, and conversational clubs, are admirably calculated to enlarge the views, and stimulate to exertion.

The demand for industrious, enterprising, and intelligent hired farmers is increasing, for those who will command from $15 to $50 per month. S. F.

Swine. By H. C. [For the New-York Farmer and American Gardener's Magazine.]

Mr. Editor: To inquisitive minds facts are always instructive and valuable. "What man has done, man can do." This is a lesson of the highest practical utility. The experiments of others excite competition, and their success encourages and animates our exertions. For these reasons I propose to give you, from my agricultural minutes, a few accounts of the success of some individuals in fattening swine. I shall not refer to any examples of hogs which have been kept to an advanced age, and on account of their extraordinary size have been carried through the country for exhibition. Some of these have been of an enormous size. But I propose to give you the weight of some which have been fatted for consumption, and their weight, when dressed for the market. I shall put down, where they are ascertained, the place and year where and when they have been raised, their owners' names, their age, and weight.

1815—Eli Cooley, Deerfield, Mass., killed eight. They were all of one litter, and were 19 months old. Their weight as subjoined—577, 492, 520, 423, 492, 445, 405, 455—total,.....3809 lbs.

1823—P. Denton, Greenfield, N. Y.
four pigs, 9 months 17 days, wt. 348, 318, 310, 308—total,.....1284 "

1824—Oliver Chickering, Shrewsbury, Mass.
one, 19 months,..... 650 "

G. Wheelock, do.
one, 20 months,..... 584 "

1825—Maskell Ware, Rhodestown, N. J.
one,..... 740 "

——— Johnston, Bridgton, N. J.
two, 19 months,.....1100 "

1828—Enoch James, Deerfield, N. H.
one, 18 months,..... 716 "

—— Smith, Hunterdon, N. J.
five hogs, the oldest 12 months, four less than 11 months; largest, 329 lbs.; smallest, 268; weight of the whole..1501 "

1829—Stacy Hall, Portsmouth, N. H.
one, 22 months..... 682 "
This hog gained 500 lbs. in less than a year. He was of the Byfield breed.

1830—Alanson Sessions, Cumberland, R. I.
one,..... 675 "
one,..... 645 "

Richd. Leisure, Swanzey, R. I.
one, 20 months,..... 712 "

1831—John King, Medford, Mass.
one, 30 months,..... 726 "

Samuel Dare, Salem county, N. J.
one,..... 954 "
Weight alive, 1074 lbs.

D. Rowell, Madison,
six hogs, wt. 427, 436, 449, 483, 492, 538—total.....2825 "

Capt. Mackay, Weston,
two hogs, 20 months—wt.....1218 "

Farmer in Dunning street, N. Y
twenty-nine hogs, average wt. each 400 "

1832—Earl Stimson, Galway, N. Y.
twenty hogs, average wt. each.... 414 "

1832—Asa Littlefield, Framingham, Mass.
one, 18 to 19 months,..... 678 lbs.

1834—In Nantucket, Mass.
one,..... 470 "
Increase in 267 days, 295 lbs.

Sable Rogers, Springfield, Mass.
one, 2 years old,..... 708 "

E. Thayer, Charlemont, Mass.
one, 17 months,..... 542 "

——— Pittston, Rensselaer county, N. Y.
two, 15 months,..... 893 "

——— Lansingburgh, N. Y.
one, 14 months,..... 412½ "

R. Benedict, Lagrange, Dutchess co., N. Y.
sixteen hogs, average each..... 333 "

S. B. Clapp, Lagrange,
one, 10 months,..... 340 "
Called the Mocho breed; probably some local designation.

Andrew Lake, Sharon, Dutchess co., N. Y.
twenty-one hogs, average wt..... 351 "

—— Doty, Hempstead, L. I.
Two hogs, 14 months old, one,.... 611 "
" ..... 578 "
The above were fed upon apples and milk through the last of the summer; in the fall, upon Indian meal, how prepared is not known.

——— De Wolfe, Deerfield, Mass.
two hogs, one,..... 432 "
" ..... 482 "

1835—Eben. Burrill, Jr., Lynn, Mass.
Three hogs, age not ascertained, but believed not to exceed 19 months:
one,..... 492 "
" ..... 610 "
" ..... 743 "

Total..... 1845 "

Solomon Williams, Deerfield, Mass.
one,..... 482 "
" ..... 528 "

Total..... 1010 "

Such results as the above are certainly remarkable and encouraging. Much, undoubtedly, of such success is owing to the particular breed of hogs; not a little to the management and mode of feeding. In no branch of husbandry has there been greater and more acknowledged improvement than in the race of swine, within indeed the memory of most of us. This improvement, in the judgment of one of the most distinguished butchers and packers of pork in Boston, has added hundreds of thousands of dollars to Massachusetts. The origin of the Byfield breed I perfectly well remember. A respectable friend of mine, living in Byfield, one of the parishes in Newbury, Mass., being at market one day in Newburyport, found a small Chinese boar pig, recently arrived in a vessel from India or Canton; which he obtained and carried home in his pannier or market cart; for it was then common to carry meat to market in two large square baskets, hung on either side of the saddle, where the farmer rode. From this animal he propagated the stock with success, which has spread through the whole country, and even to Europe, under the same name. This could not have been far from the year 1790, and this good man and excellent farmer is still living. Since that time various crosses have been made, and other valuable breeds introduced into the country. Without question, the finest boar in appearance which I have ever seen is owned by David Hosack, Esq., M. D., at his magnificent establishment at Hyde Park on the Hudson; whose superlatively fine stock of Improved Durham Cows, not surpassed, and, when the number is considered, not equalled by any, which have come under my observation, and whose admirable flock of pure Dishley bucks and ewes, reflect the highest honor upon his public spirit, and his truly patriotic liberality. Mr. Caleb N. Bement, of Albany, the keeper of an excellent hotel in Market street, a spirited and intelligent farmer, as well as a courteous and attentive landlord, has, through the kindness of Dr. Hosack, a boar from his stock, which promises extremely well. He has likewise a cow from the improved stock of I. Whitaker, of England, of most extraordinary excellence in appearance and product; and much other stock, deserving the attention and examination of every admirer of fine animals.

H. C.

Meadowbanks, Jan. 7, 1835.

Tanner's Bark and Leaf Mould for Strawberries. By D. F. A. [For the New-York Farmer and American Gardener's Magazine.]

Mr. Fleet: In the last number of the Farmer I notice a communication by H. H., on the use of tanner's bark in the cultivation of the strawberry. I tried it some years since, and though a very good thing, it has some disadvantages: First, it is generally found to impart a disagreeable flavor to the fruit; secondly, it cannot be procured at all times, and then but in few places, unless at too much expense. I have this year tried a substitute, which I recommend in preference, as every wood or coppice will furnish the material.

Rake away all the loose leaves from a corner or hollow, where they annually settle, and gather the coarse mould beneath; or prefer the decayed wood from an old stump or fallen tree, that has decomposed, until it has become nearly in appearance like tanner's bark. It is without that astringent quality, and will answer in all respects, prevent weeds, preserve moisture, warmth in winter, food in spring, and by selecting the wood from different trees, a variety of tints may be formed that will make a pleasing appearance when this chilly season deprives us of so much of our garden foliage. I subjoin my method of cultivating. In the fall, cover the beds slightly with straw, and burn *all* down; then dig in between the hills with a trowel or deep hoe, rake smooth, and replace with a fresh dressing two inches thick, for winter protection, &c. The hills ought to be *no* more than twelve inches apart, and two or three stems in a hill. While the fruit is setting, water morning and evening, with a table spoonful of salt to each pail of rain or river water; if well watered, it should be exposed to the sun some days. A bed planted *from* any good variety in *full bearing* will, thus treated, always insure a crop. Early in September is the best time to plant, choosing the first made runner plants, or some offsets for immediate bearing. The runners will come in the second and third season. D. F. A.

December, 1834.

Fat Sheep. By B. [For the New-York Farmer and American Gardener's Magazine.]

MR. MINOR,—Albany has long been celebrated for its beef and mutton, but never was it more truly verified than on the 21st of February last. The sheep were exhibited in the yard of Bement's Hotel, a few days previous, and excited the admiration of all who saw them. There were eight remarkably fat wethers, of the Leicester and Cotswold (more commonly known as Dunn's) breed, and were bred and fattened by Mr. Thomas Dunn, on his farm, 14 miles west of Albany.

Messrs. Kirkpatrick & Co. purchased them at $15 per head. Their average weight, after dressing, was 35 lbs. per quarter, and 140 lbs. per animal. Wool would probably average 8 pounds.

The above cut is a correct likeness of one of them, taken by a gentleman who happened to be in the city at the time, and conveys a pretty correct idea of one of this breed of sheep when fat.

Great credit is due to the breeder, as well as the butcher, for procuring such superior animals for the shambles.

On the same stalls I also noticed some remarkably fat beef and veal; in short, I never witnessed so great a display of *superior* meats at any market, consisting of beef, mutton, pork, and veal, in any city.

At the stall of H. Y. Webb, I also observed three carcases of new variety of sheep, called Hampshire Downs, first introduced here by S. Hawes, Esq., bred and fattened by him on ruta baga turnips.

This mutton, in England, is esteemed of a very superior quality, and commands the highest price. The Hampshire Downs weighed, when dressed, 124 lbs., and 30 lbs. per quarter. B.

Albany, March 2, 1835.

Bloody Murrain—Ohio Cattle—Effects of the Present Winter. By J. B. G. [For the New-York Farmer, and American Gardener's Magazine.]

D. K. MINOR, Esq.

Dear Sir,—Having a few days ago lost a fine steer (brought from the State of Ohio last autumn), by the disease commonly called red water, or bloody murrain, and as some of your correspondents have stated in the Farmer that this disease is occasioned by leeches in the liver, the cattle drinking water containing them; and in that manner it is supposed they find their way into the stomach, and ultimately into the liver, perforating the veins and arteries, which produce the disease above noticed,—and as it was the first time that I ever had an animal attacked with this disease, I was determined to examine and judge for myself. Having, after a good deal of awkwardness, succeeded in disembowelling the animal, my first essay was to examine the liver. This I dissected in all manner of forms and shapes, but could not detect any thing that to my unpractised eyes appeared wrong. I then returned to the carcase to examine the other visceræ, but could discover nothing sufficient to cause so fatal a disease. Being not yet satisfied, I made a second examination of the liver, and there, to my astonishment, found embedded in the substance of the liver, to all appearance, a leech! full one and a half inches in length. I state the facts such as I found them, and shall make no further comments, but hope others who may have an opportunity will examine for themselves. In this part of the country the farmers lose numbers of their cattle brought from Ohio, and it is considered useless to employ any remedies—the disease cannot be known until the urine becomes bloody, and then 12 to 24 hours generally puts an end to both the disease and the animal together.

Cattle brought from some particular localities are considered to be more liable to the disease than those from other situations, and experienced feeders generally inquire from what particular part of the country cattle are brought, ere they will venture to buy. Yours, &c. J. B. G.

P. S.—This has been the hardest winter our fruit trees have ever known in this part of the country. I have already cut down peach trees measuring from 20 to 24 inches in circumference at the ground, bark and sap wood dark brown, and perfectly dead, down to within 15 inches of the ground, where the snow protected them. In a well established nursery at Lancaster, the proprietor tells me *all* his peach and apricot trees are killed to the surface of the snow, and many pear, cherry, and other trees shared the same fate. Peach trees of four to six years' growth have withstood the cold better than younger and older trees. I have lost many peach, pear, and apricot trees, and I have also noticed some apple trees, the bark splitting, and exposing to view the black, and of course dead stem. We shall have no fruit of any kind this season, which is not very desirable, as we had none last. Winter grain, however, was well protected by the snow, the ground not being froze during all the severe cold. The thermometer, for near two weeks, stood from 10° *to* 22° *below zero!!* Yours, &c. J. B. C.

Columbia, Pa., Feb. 20, 1835.

NEW PUBLICATIONS.

The American Gardener's Magazine, and Register of Improvements in Rural Affairs. Conducted by C. M. HOVEY, and P. B. HOVEY, Jr.

This is a very neatly executed monthly publication from the Boston press. The Messrs. H. are practical men, and their first number gives indications that they will sustain themselves in their new vocation with credit and usefulness. The plan and matter of their work will not suffer in comparison with those of any periodical on gardening that has yet been undertaken in this country. We hope they will have every encouragement to persevere.

We should have been better pleased had they not taken the sub-title to our own work.

Adam, the Gardener. By CHARLES COWDEN CLARKE, Author of Tales in Prose from Chaucer: Revised by the Editor of the Popular Library. Boston, JOHN ALLEN & Co., 1835, 18mo., pages 252.

Every attempt to implant a love for rural pursuits in the breasts of youth should be very favorably regarded—as likely to be productive of great and varied benefit, not only in reference to the increased capabilities of adding to the physical resources, but to the moral worth, of the rising generation. With pleasure, therefore, we opened this little volume. Its perusal has led us to approve both of its contents, and of the taste and judgment that selected it to form a part of the Juvenile Popular Library.

Although the work was written, so far as practical directions are concerned, for the climate of England, yet it abounds in so much that is of general interest, and the whole, too, is in so lively and pleasing style, that no youth can fail of deriving pleasure in its perusal. For those of our ow country, residing south of New-Jersey, mu of the practical information is very app priate, and much needed.

Mr. and Mrs. Stock, the parents o Adam, appear admirably qualified, or rather properly exert themselves, to teach the young idea how to shoot. The following extracts, under the head of March, are lengthy, but they convey so many useful suggestions to parents, and afford so much for a just comparison of the climate of England with that of the United States, that our readers will not, we presume, think them unworthy the space they occupy in our columns.

MARCH.

"As yet the trembling year is unconfirm'd,
And winter oft at eve resumes the breeze,
Chills the pale morn, and bids his driving sleets
Deform the day, delightless. * * *
* * * * At length, array'd
In all the colors of the flushing year,
By nature's swift and secret-working hand,
The garden glows."

"The last two or three days of February, and the first week of the present month, March, were so stormy, and attended with such floods of rain, that Mr. Stock found it was of very little use attempting to do any thing in the garden; he therefore told Adam, that as the weather was so unfavorable, he should take advantage of it, and get on as fast as he could with his arithmetic and geography; 'for,' said he, 'you know how often I have told you that the real meaning of *independence* is our being able to do every thing for ourselves. Now, you are aware, that no man *could* be able to prepare and make *every thing* he wanted. A North American Indian, or any other wild man, would, because his wants are fewer than ours; every thing he requires, he *can* make. His mat for a bed; his bow and arrows, and fishing lines and nets, to procure him food; and he can build himself a hut. But we are brought up in a different manner from these people, and our habits of life compel us to stand in need of many things that an Indian never thought of. Therefore an Indian is more independent than we are. But, if we choose, we may be very independent, too; and the way is, by getting all the useful knowledge we can; by being diligent in our business, and contented with what we gain. Now, Adam, you will never be an independent man if you know no more of arithmetic than you do at present; because you will not be able to calculate the value of the things which you wish to sell, but must have a person to do this for you; and then you will be *dependent* indeed. You cannot think of this too often, that if you wish not to be in the power of any man living, (for that is being *independent*,) you must acquire all the knowledge possible; be honest, and be contented.'

"This dreary week having passed, and Adam, to say the truth, tired of confinement, the weather cleared, and a brisk wind sprung up, which, after a few hours, dried the surface of the ground so that they could go to work. Mr. Stock told Adam that this would be a very busy month for them. 'In the first place,' said he, 'we must weed the beds which we sowed the last two months. The onions, the parsnips, the carrots, the lettuces, and, indeed, all the beds. And if we persevere now, while the weeds are young, we shall keep the garden clear, and benefit the plants. But you must be very careful, and distinguish the weeds.' This was a tedious task, and Adam began to be wearied; but as his father helped him, and kept steadily at it, he did not complain. When they had finished, his father showed him how to dress the artichokes, and take off the suckers for fresh plants. Afterwards he saw him fork up and rake up the asparagus, and sow the seeds for fresh beds. When this was done, they sowed some more beet-root, beans, and broccoli, for the first crop; carrots, parsnips, and onions, for the principal crop, and for the winter. His father showed him, too, how to prick out the celery, and plant it: and then they transplanted the young cauliflower plants which had been all the winter under glasses: they also sowed radishes and mustard and cress, covering up the beds from the cold winds. 'Now, Adam,' said his father, 'you may take the barrow, and wheel in some manure from the yard, and we will make a cucumber bed. When we have finished this, we will plant out our potatoes; and I will show you how to cut them into quarters, so as to leave in each partition what is called an eye; for where there is an eye, there will be a shoot, and a fresh plant. And when this is done we will sow two or three more rows of our favorite peas; and we will have one or more beds of turnips." All this, I should suppose, occupied them nearly a fortnight. During the time they were at work, the season was very various. It might truly be called 'March many-weathers;' for in the course of one day they had wind, and sunshine, snow, rain, and fierce storms of hail. 'It is well, Adam,' said Mr. Stock, 'that we covered up our tender flowers, and screened the fruit trees; or the opening blossoms would have suffered bitterly from 'the slanting bullets of the storm.' But we must not complain; for all this violent weather had better come now than later in the year, when our blossoms would be more opened. And indeed, it is pleasant to have the gleams of sunshine after the dark storms, and to see the great clouds moving before the wind like mountains of snow, and to watch the shadows of them passing over the ploughed lands; and when they are far off, to see the showers descend in long streaks. See, now, how beautiful those pigeons look, hurrying home after their meal, with the black cloud behind them! Then we have the lively song of the chaffinch between the showers. It is of the greatest service to the rising vegetation to have these changes of rain, wind, and sunshine; because the moisture is allowed to sink to the roots of the plants, and the warmth of the sun brings them and the seeds forward. * * * * *

"'Come, you shall help me plant out these few sweet herbs, which I sowed last year; and here we will have a row of parsley; then, if the weather be likely to hold up for the remainder of the day, we will dine early, and take a long walk.' They did so, and away they all went. By the side of a farm-yard, on a dead branch, at the top of an elm tree, they heard a thrush making the homestead ring with his fine note. Their father told them that, if they were now near some wood of beech trees, they would hear the ring-dove cooing, and perhaps the crowing of pheasants, the most beautiful birds in our country. 'The rooks also are now in a great bustle,' said he, 'building their nests; and as the spring is fully set in, and the air mild, I make no doubt we shall see the bat fluttering like a butterfly around the farm-yards in search of gnats and other insects, its food. I told you, if you recollect, that the bat is one of the animals that remain *torpid* all the winter; that is, that it *sleeps* through the whole of that season. It is generally to be found in the roofs of thatched cottages, and in small holes in the walls of old out-houses, hanging by the hind legs, and covered over with its wings. If you had found one during the severe weather of January, and had kept it in your hand for some time, or placed it near the fire, it would have awakened and begun to fly about. But it would be a cruel thing to do so, for as there is no food for it at that time of the year, the little creature would certainly die.' Adam said it could go to sleep again. 'Yes,' said his father, 'so it could; and sometimes, when we have two or three warm days during the winter season, they will awake and come from their hiding-places; but then the same warmth brings forth the insects which are their food, and when the frosty wind returns, they *do* go to sleep again, well fed. But if you were to rouse one by bringing him to the fire, he would wake almost starved from his long fasting, and would flutter about in search of food. If he did not soon meet with some, being so weak with hunger, he would very shortly die.

"'In this month, the beautiful little fish called the smelt, or sparling, comes up the river from the sea, to lay its spawn in the warm shallow places. It is so tender, that if it meet with any snow or ice in the river, it hurries back again to the sea. When caught, it has a delicate scent, as of cucumber sliced. It is from its singular smell that it derives its name, *smelt*.'

"As they were passing a field, they observed a man ploughing, and behind him a great number of rooks, picking up the worms and grubs of insects which the plough had turned over. Their father told them that these birds are very useful to the farmer, on account of the quantity of vermin they destroy; and, therefore, that it is not wise to shoot them, for they are easily scared from the land when the seed is in the ground.

"Mr. Stock told Adam, if he took notice, he might observe different sorts of bees out now; because the weather had become warmer, and that there were many more flowers. 'The one you saw,' said he, 'last month, in the crocus, was a very early visitor, for they seldom venture forth till the middle of this month. There are several species in this country, some of which are of a solitary nature, and bore for themselves a hole in banks of earth. These gather no honey. Others, like your friends, the *humble-bees*, are *gregarious*; which means, that they live *in flocks*; from the Latin word grex, gregis, which, you ought to recollect, signifies a *flock*. These collect and lay up honey for the winter; and, lastly, those which we keep in hives, which partake of the same nature. About this time the different sorts of snakes come forth from their haunts, where they have lain coiled up during the frost. Do you know the meaning of *coiled*, Adam? You should have asked, if you do not. It means rolled round and round, as you have seen the seamen serve their rope. And they are called *coils* of rope. At the time these animals (the snakes) awake and come forth, the frogs and toads, their food, are prepared for them; for they are abroad too. The frogs and toads are also provided for; the spring weather having brought out the worms and insects which they live on. How wisely and completely every thing in nature is provided and arranged!'

"'They arrived at home long after sunset, and saw an owl flying into a barn. Just as he passed them he hooted, and Bella mocked him, saying, it was just as if he was laughing.

"'In the evening they read the beautiful story in the 'Evenings at Home,' called 'Eyes and No Eyes.'

"The next day Mr. Stock told Adam that they must pay the necessary attention to their flower-garden; for that during this month all their annual flower seeds should be sown. His father went round the beds, sticking into the earth little twigs, to show Adam where he would have them sown. Each of these twigs they had prepared in the long evenings by slitting them at the top, and putting in a small piece of white paper. This simple arrangement showed conspicuously the places where seed was sown. They then proceeded, as I described last month, removing the earth in a circle about an inch deep; and Adam came to his father for the quantity required for each spot; Mr. Stock desiring him to be particular in scattering the seeds, so that they should not be close together. When they had finished, each took a small hoe, and weeded the flower beds; afterwards raking them over neatly. They then took some of the layers from their finest carnations, and put them into pots.

"One day Adam's mamma told him she

wished some articles from a shop in the neighboring village, and gave him leave to go for them, telling him, at the same time, that if he would promise to be very steady and bring her an account of all he saw, he might take his sister with him. Adam was as good as his word; and when he had returned and given his mother the articles for which she had sent him, he began telling her what they had seen. 'And in one field, mamma,' said he, 'I do think there were a hundred little lambs. Some were very little indeed, and their legs were almost as thick as the mother's. I do not think them pretty when they are quite young. But there were some that were older, which got all together in one part of the field, and they were having such fun! they looked as if they were running a race; and their tails flew about so!' His mother pointed to Bloomfield's Poems, and desired him to reach them to her from the book-shelf. 'Here, Adam,' said she, 'is what you have been telling me, put into verses.' The following simple and natural lines were then read by his mother:

"Say, ye that know, ye who have felt and seen,
Spring's morning smiles and soul-enlivening green,
Say, did you give the thrilling transport way?"

'I am sure,' said she, 'Adam, you cannot understand that line; but you will when you are a few years older.' She then continued—

"Did your eye brighten when young lambs at play
Leap'd o'er your path with animated pride,
Or gaz'd in merry clusters by your side?
* * * * * *
A few begin a short but vigorous race.
* * * * * *
Away they scour, impetuous, ardent, strong,
The green turf trembling as they bound along;
Adown the slope, then up the hillock climb,
Where every molehill is a bed of thyme;
There panting stop; yet scarcely can refrain;
A bird, a leaf, will set them off again:
Or, if a gale with strength unusual blow,
Scatt'ring the wild-briar roses into snow,
Their little limbs increasing efforts try,
Like the torn flower the fair assemblage fly."
[Farmer's Boy—Spring.]

"'Well, Adam,' said his mother, 'and what else did you notice?' 'Nothing more, I think,' said he, 'except that we stayed awhile to see the rooks building their nests. We watched one pair, and you cannot think how often they came to the nest with little branches in their beaks. I wonder the great winds do not blow their nests out of the trees, because they are all stuck on the top.' 'And yet,' said his mother, 'I never saw a nest blown down; and I dare say nothing but one of those storms which tear off large arms of the trees would endanger them. The rooks are clever builders; they contrive to weave the branches of the trees with their nests so strongly, that you would find it difficult to pull one away without destroying it. Therefore it is that you see them rock backwards and forwards in very high winds, without there being a chance that they will fall.

"'When I said that 'you could not pull away a nest without destroying it,' I did not mean you to try. And, indeed, I should be sorry to see you take *any* bird's nest, because it is cruel to do so; as cruel as it would be for a very strong man to turn us all out of doors and pull down our house. Now, we have no more right to give pain *unnecessarily* to *any* creature, than the strong man would have a right to give us pain by driving us away from home. Some animals do us much mischief, and if they were not destroyed, our houses and gardens would be much injured: such as rats, mice, moles, weasels, sparrows, snails, slugs, and many other vermin. But then, if it could be so contrived, I would have them killed so quickly that they should not suffer for a moment. A boy or girl that could take delight in torturing a little bird, or any other weak creature, is no better than that cruel animal the cat, which will worry a poor mouse sometimes for half an hour before it kills and eats it. It used to be the custom on Shrove Tuesday—the day on which we eat pancakes, you know—for people to meet together and amuse themselves by throwing large sticks at cocks. The poor creatures were tied to a stake fixed in the ground, and the owners of them received a certain sum of money from the wretches who were inclined to throw at them. If the miserable bird received a blow on the head which stunned it, the barbarous master would put its head for a time into the ground in order to recover it, that it might be again in a state to be tortured afresh, and that he might receive more money for the fresh throws. I believe that this cruel and wicked amusement is no longer practised in this country; but the equally barbarous custom of setting game-cocks to fight with sharp steel spurs tied to their heels is still common. At one of these meetings there are no fewer than thirty of these cocks killed, and all this for the gratification of people who call themselves gentlemen. I will tell you a story, a *true* one, about cock-fighting: One wicked monster, who lived at Tottenham, named Ardesoif, a man of large fortune, had a favorite game-cock that had gained several battles; at length, one day it was conquered, which so enraged him that he had the poor bird tied to a spit and roasted alive before a large fire! The screams of the suffering animal were so affecting, that some gentlemen who were present attempted to interfere, which so enraged the wretch that he seized a poker, and with the most furious oaths declared he would kill the first man who should dare to rescue the bird. But, in the midst of his rage and cursing, HE FELL DOWN DEAD ON THE SPOT! This dreadful event happened on the 4th of April, 1789. This man, no doubt, when he was a little boy, was fond of taking birds' nests, running pins through cock-chaffers, and tearing the legs and wings from flies; for cruel men were generally, perhaps always, cruel boys.'"

Cannot many of our readers perceive that the following advice to little Adam is worth more than years of instruction in their common-school days?

"'Now go and fetch your memorandum book, and while I am finishing this task of preparing the bed to sow the beans, I will dictate to you, as you write upon the arbor seat, all the operations I would have performed during the present month: you will then be at no uncertainty as to the right employment of your time. I will do the same each month to the end of the year; and, in the next year, I shall wish you to keep a diary; that is, a daily record of all you have done in the garden: you will by this means more readily amend any errors you may hereafter commit. Besides, by acquiring the habit of setting down all you may have observed in the animal and vegetable world immediately around you, you will, by degrees, be laying up a large store of knowledge and useful experience; and some years hence, when you shall become a man, you may desire to write upon this, your favorite occupation, for the instruction of others: your diary will then be found useful to you for reference; in addition to which, the labor of writing for the public will cause you no greater effort than that of inditing a letter to a friend. All young persons should devote a few minutes to putting down upon paper the principal occurrences of the day, and, as often as possible, their thoughts upon those events; and, while doing this, they should strive to write in as clear and intelligible language as possible. Let them once acquire this habit, and all difficulty in after-life will vanish.' In a few minutes Adam had brought his book and pencil, and prepared to receive his father's directions, who dictated to him as follows." * * * * *

We intended to make further extracts, but our limits forbid. To parents in the country, especially, we earnestly recommend the work. It may, *very probably*, be the means of rendering every youth, into whose hands it falls, far more useful and happy. S. F.

NEW-YORK FARMER.

MARCH 1, 1835.

We are obliged to W. W. for his good opinion of the Farmer, and hope he will be able to send us a good list of names.

In reply to his request, we would inform him that the *seed* of the Chinese mulberry cannot readily be obtained, but the *plants* may be had of H. Huxley & Co., 81 Barclay st., N. Y., and we presume of Messrs. Buel & Wilson, of Albany, and other nurserymen.

New-York Horticultural Society.—The following report and account of the Dahlia Exhibition of last year, would have been published last December, had not untoward circumstances prevented it. We trust, however, that it will not be less interesting in consequence of the delay.

Agreeably to a resolution of the Society, passed at a former meeting, the Annual Exhibition of Dahlias was held at Niblo's Garden, on the 14th of October last, and was also continued for the two following days, viz. 15th and 16th.

The display of flowers was very great, considering the unfavorableness of the season, and that several persons residing but a short distance from the city had their plants destroyed, or the flowers so much injured by the frost that they could not exhibit them.

The following is the report of the committee.

REPORT.

The Inspecting Committee of the New-York Horticultural Society beg leave to report:

That in accordance with the rules and regulations adopted at a meeting of the Society, at its rooms, on the 11th day of September to be observed at the Exhibition of Dahlias to be given at Niblo's Garden, on the 14th, 15th, and 16th current, your committee proceeded to discharge the duty assigned it, of awarding the different premiums for Dahlias to the competitors for prizes; and after a strict, careful, and impartial examination, unanimously decided on the following distribution of the prizes:

The first premium, for the best six self-colored Seedling Dahlias, is awarded to Mr. Thomas Dunlap, and was designated by the Committee of Arrangements as No. 8.

No second premium is awarded—as no person has presented three variegated Seedlings, as prescribed by the rules and regulations above referred to.

The third premium, for the greatest and best variety of Seedling Dahlias, is awarded to Mr. John Popayan, of Bloomingdale, and was designated by the Committee of Arrangements as No. 9.

The fourth premium, for the best twelve self-colored imported Dahlias, is awarded to Mr. The

mas Dunlap, and was designated by the Committee of Arrangements by the letter E.

The fifth premium, for the best six variegated imported Dahlias, is awarded to Mr. Thomas Dunlap, and was designated by the Committee of Arrangements by the letter E.

The sixth premium, for the greatest and best variety of imported Dahlias, is awarded to Messrs. Shaw and Thorburn, and was designated by the Committee of Arrangements by the letter F.

Your committee feels itself bound to award a discretionary premium to Mr. William Reed, for the presentation of six beautiful self-colored Seedling Dahlias; whtch, but for non-conformity to the rules regulating the exhibition, would have been entitled to the first premium.

Many beautiful specimens for competition were exhibited, which were unavoidably passed over by your committee, in consequence of the non-observance of the rules by the gentlemen presenting them.

Liberal presentations of this magnificent flower were made by cultivators and amateurs, among which stood most conspicuous those offered by Messrs. Thomas Hogg, Michael Floy & Son, William Reed, William Neale, William Rushton, and Arnold & Hyslop; and your committee take leave to add, that a more splendid display of Floral beauty, in form, tint, and variety, never (in its opinion) greeted the eyes of an admiring audience in this, or perhaps in any other country.

The most extensive collection of beautiful new varieties was sent for exhibition, and not for competition, by Mr. Geo. C. Thorburn, in which the Queen of the Dahlias stands unrivalled.

J. K. Hamilton, Chairman.
W. R. Cooke,
Benj. McVickar,
John J. Palmer.

New-York, Oct. 16, 1834.

The names of the flowers which obtained the premiums are as follows:

For the first premium, awarded to Mr. Thomas Dunlap—Beauty of Bloomingdale, Bulow, Dunlap's King of the Yellows, Dunlap's Ranunculiflora, Dunlap's Dwarf Yellow, and one not named.

Those for the third premium, awarded to Mr. John Popayan, were not named.

For the fourth premium, awarded to Mr. Thomas Dunlap—Widnall's Paragon of Perfection, Dennisii, Coronation, Widnall's Salamander, Hall's Palmyra, King of the Yellows, Queen of the Whites, Mountain of Snow, King of the Whites, Miss Pelham, Coccinea Speciosissima, and Surpasse Triumphe Royale.

For the fifth premium, awarded to Mr. Thomas Dunlap—Agrippina, Russell's Maculatum, Pygmea, Anna Boleyn, Levick's Incomparable, and Douglass' Augusta.

For the sixth premium, awarded to Messrs. Shaw & Thorburn—Lilac Anemone, Daniel O'Connell, King of the Whites, Levick's Commander-in-Chief, Galanthus, Pavonia, Scarlet Coronation, Lord Liverpool, Bona Dea, New Scarlet Turban, Achatus, Lady Fitzharris, Richardson's Blush White, Crimson Shaded, Dough's Blush, Fulgida Perfecta, Barrett's Susanna, Agrippina, Widnall's Aurora, Penelope, Rose Vesta, Levick's Incomparable, Inwood's Dwarf Yellow, Inwood's Rival, Miller's Invincible, Striata, Doctor Franklin, Foster's Seedling, Douglass' Ricci, Anna Maria, Tricolor, Coccinea Multiflora, Queen of Wirtemburg, Rosea Alba, L'Amitie, Conspicua, Bernardiae, Russell's Maculatum, Golden Lotus, Columbine, Widnall's Chancellor, Picta, Neptune, Amanda, Anthonia, Colvill's Perfecta, Pulla, Landgravine, Lady Farnborough, Helene Striata, Miss Pelham, Douglass' Augusta, Widnall's Salamander, Melancthon, Richardson's Alicia, Queen of the Whites, Chef d' Ouvre, Purpurca Perfecta, Foster's Constantia, Queen of the Yellows, Scarlet Ranunculus, and Countess of Liverpool.

The flowers presented by Mr. Wm. Reed, for which a discretionary premium was awarded, were not named.

A large number of flowers were presented by the following persons, and among them were some most beautiful specimens:

Messrs. M. Floy & Son—Forty-two imported varieties, many of which were quite new, very fine, and beautiful. Messrs. Floy would have exhibited a greater number of varieties, but unfortunately the Dahlias at their nursery, in Harlæm, were destroyed by the frost.

Mr. A. Arnold—Fifty-four imported varieties, many of which were new, and very beautiful; also, seven fine Seedling varieties, two of which were first rate flowers.

Mr. Thomas Hogg—Fifty-nine imported varities, many of them new, and all of them very fine specimens; also, thirteen Seedling varieties, some of them remarkably fine and good.

Mr. William Rushton—Thirty-three imported varieties, all of them very beautiful specimens.

Dr. B. McVickar—Seventeen imported varieties, the greatest part of them new, very fine, and beautiful specimens.

Mr. G. Davis—Eleven imported varieties, all of them very good specimens.

Mr. Wm. Neale—Twelve imported varieties, very fine specimens. These would have been entitled to the fourth premium, but for non-conformity to the rules.

Mr. A. A. Leggett—Seven fine Seedling, and five fine imported varieties.

Mr. Wm. Reed—Twelve imported varieties, all of them very fine specimens.

Mrs. Bostwick—Eleven imported varieties, all very good specimens.

Mr. A. Hyslop—Twelve imported varieties, all of them fine specimens, and three good Seedling varieties.

Mr. J. Johnson—Eleven imported varieties, very good specimens, and two good Seedlings.

Mr. H. W. Havens—Eight imported varieties, all very good specimens.

Mr. E. H. Warner—A number of very fine imported varieties.

Mr. G. C. Thorburn— imported varieties, many of them new, and all of them very fine specimens, especially the Queen of the Dahlias, which is unrivalled as a variegated flower. These would have obtained a premium, but they were not entered for competition.

The above comprises all the flowers presented for competition or exhibition; but Messrs. Hogg, Reed, Floy, and Neale, also furnished several hundred flowers for filling up the table, and the greatest part of these flowers were equally as good specimens as those presented for competition.

As it may be interesting to amateurs and growers to know the names of all the varieties presented, I will now subjoin the names of those not enumerated above, viz.—Tincta, Marchioness of Bath, Sulphurea Superba, Duchess of Kent, French White, Miller's Defiance, Splendida, Blood-red Globe, Miss Wood, Widnall's Diana, Kentish Hero, Nova Rose Lilac, Blanda, Ne Plus Ultra, Grandeur Superbe, Precellentissimo, Lord Byron, Aurantia, Goliah, Maid of Bellevue, La Brilliante, Brown's Rose, Lass of Richmond Hill, Rising Sun, Imperiosa, Hall's Fiery Meteor, Guttata Major, King of Roses, Atro Purpurea, Involute Purpurea, Fulgida Nana, Prince George, Nubilum, Romulus, Groombridge's Matchless, Crimson Globe, Fairy Queen, Squibb's Pure Yellow, Metropolitan, Maria Louisa, Barrett's William the Fourth, Magnet, Superb Changeable, Theodore, Stephania, Foster's Incomparable, Alexandrina Victoria, Rudhall's Venus, Henry the Eighth, Widnall's Nonpareil, Veitch's Queen Adelaide, Fair Ellen, Duchess of Richmond, Dawson's Victory, Parroquet, Star of Sussex, Royal Dwarf Orange, Queen of Belgium, Turner's Shaded, Lord John Russell, Golden Yellow, Douglass' Decora, Miss Dickson, Scarlet Turban, Queen of Roses, Royal Lilac, Hall's Mogul, Juno, Achilles, Helas, Miller's Lord Brougham, Miller's King Alfred, Fair Devonian, Juliet, Justinia, Albina, Miller's Mark Anthony, Nymphaeflora, Squibb's Elegans, Zelinda, Sir John Copley, Navarino, Miller's Eloise, Miller's Heroine, Man of Kent, Maid of St. Leonard's, Adeliza, Lady Sefton, Fulgida Superba, Phœnix, Grantchester Nonpareil, Sulphurea Alata, Windsor Castle, Hero Francaise, Painted Lady, and Gloriosa Rosea.

James Hogg, Secretary
of Inspection Comittee.

Fall Pigs—Improved Breed.—At the Fair of the New-York Agricultural Society, I bid off two of a large litter of very beautiful pigs, at *five dollars* each. They were sent to me too young, and before I was ready for them, and I was obliged to trust them to the care of others. They fared as well, and perhaps better, than some Berkshires that were littered two or three months earlier; but while the latter have kept in a growing thriving condition, the former are mean looking diminutive rats. They are a mixture of the grass with an imported breed. I attribute the difference in the condition of the two breeds to the different seasons in which they were littered—so much more difficult it is to rear late pigs. They require much greater care and nourishment. From the above, and a thousand other instances, we may learn that improved breeds will not thrive and fatten without suitable food and attention.

Having recently moved my hogs in another neighborhood, it leaked out that I gave five dollars a-piece for my pigs. My neighbors showed me some of those about the same age, that cost but fifty cents, and better looking animals they are too. Being what they call a book farmer, I should be compelled to suffer no little chagrin, were I not able to point them to the other pen.

S. F.

Westchester, January 23, 1835.

Nova Scotia Potatoes—Vaults for preserving them.—Mr. Minor: In the early part of the present month, February, a gentleman of this city showed me a heap of upwards of 1000 bushels of Nova Scotia potatoes. They were in a vault under the basement of a large store, corner of Bowery and Division st. Many of the large houses recently built in this city have cellars or vaults below the ordinary basement story or cellar. Into these vaults frost will never penetrate. They are excellent for storing large quantities of vegetables. I should suppose it would answer a good purpose for farmers to store in the fall good potatoes and ruta baga. Both of these articles bear a good price in the course of the winter and spring.

These Nova Scotia potatoes are much like the Irish in appearance—full size, round, and flattish, reddish brown skin, not very white, but mealy when boiled. The price demanded was 62½ cents per bushel.

The papers inform us that potatoes yielded last season large crops in Maine. The eastern farmers would, in all probability, do well to ship on to this city all the good potatoes they have to spare, as soon as the weather will permit. In addition to the smallness of the crop in this section, the frost has destroyed large quantities.

S. F.

New Potatoes.—We were shown last week a quart or two of new potatoes, just out of their *warm bed*. They were raised by the gardener of Col. B. C. Howard, and have come to their present state from the planting within the last seven weeks. One of them now before us is about an inch in diameter. They are of the kind called in our catalogue "earliest white."—[Baltimore Farmer.]

Burying Turnips.—Out-door Cellars.—Early in last December I slightly buried some turnips with straw and earth in a situation well protected from cold winds, and exposed to the sun. In the latter part of January I took them out. Notwithstanding the previous very severe weather, they were in growing state, having sprouts half an inch long. My impression is, that a shady, cool situation is preferable, although it is probable that the heat exists in the turnips.

In an out-door, or dirt cellar, there were, in a little coolre place, a considerable quantity of potatoes. During some of our most severe weather, the temperature in this cellar was such as to cause the evaporated moisture from the potatoes to remain in small drops on the rafters and planks. Such cellars are far the best for preserving vegetables. They should be well covered with earth, and very tight about the door. A small aperture at the top, rising in steeple form, two feet above the outer surface, should be made for a ventilation. S. F.

Ashes for Scurvy Hogs.—At page 193, vol. vii., of New-York Farmer, it is said that one application of wood ashes cured hogs very bad with the scurvy. I have six late fall pigs of the common breed. When they were wet, I sprinkled unleached ashes over them. This was done twice, without any apparent effect. I feed them principally on tallow chandler's scraps; and they sleep under the granary —both of which may be unfavorable. Two of the best and least affected, put in pen by themselves, about a week ago, and sleeping under a board covering, are almost entirely free from it. I shall wash the others in soap-suds.

Perhaps some reader of the Farmer may tell me why the ashes failed to cure.

S. F.

February 18, 1835.

Blowing out a Candle.—Mr. Minor: I asked a lady to furnish me with a topic for a paragraph for your Farmer. She gave me the blowing out of a candle. As simple as it is, said she, not one in a hundred knows how to extinguish a candle as it should be. Some will exhaust themselves in blowing, and then leave the unextinguished wick to fill the room with smoke; others will either break the candle, or drop the grease on a clean floor or good carpet, in attempting to pull the candle out of the stick to invert it. The best way, when you have not an extinguisher, is to take a little tallow on the head of a pin, let it melt off on the top of the wick, and immediately blow out the blaze. A very slight effort is required—no smoke follows—and the wick is in a proper condition to be again lighted. L. T.

Influence of Color on Heat, the Deposition of Dew, and of Odors.—Dr. Stark, in a paper in Jameson's Journal, vol. xvii. p. 65, has shown, by experiment, that one principle operates in the production of all the above results. A black color, whether in solids or fluids, absorbs heat more rapidly, and parts with it most rapidly; dew is also deposited more rapidly on this color than on any other, and with proportionate rapidity evaporated from it. Odors, whether agreeable, offensive, or of infectious diseases, are, in like manner, absorbed with greater rapidity, and in greater quantity, in a given time, by black colors; and discharged by these colors with proportionate quickness. The other colors are next to black in the order of blue, brown, green, red, yellow, and lastly white; which last absorbs and gives out heat, dew, and odor more slowly than any other color. These facts will afford valuable hints to gardeners for the colors of walls, of walks, of rockwork, of soils, of coverings for protection, and even of their dresses.—[Gard. Mag.]

New Fruits. [From the Horticul. Register.—The desire has often been expressed, and a call more or less imperative is often made, for a select list of fruits, a limited number, of *the best possible kinds*. It is evident, however, that, at this early day, such calls may be premature, inasmuch as no select list can consistently be offered, except of such kinds only as have been proved in our country. But as many of the new kinds of fruit of the highest character have not as yet borne fruit in our country, and must therefore be excluded, it must be obvious, that such lists will from time to time require a revision.

Such a select list as we should be truly desirous of offering to the public as *the very best possible*, cannot yet be formed till all the new and finest kinds which this extraordinary age has produced, have been here put to trial.

Effectual measures are now in train, which it is to be hoped may bring them all —a host in numbers, in names, and in excellence.

Last spring, and late in May, through the distinguished liberality and philanthropy of the celebrated Professor Van Mons, of Louvain, Mr. Manning and myself received over three hundred select varieties of new Flemish Pears, of the first class for excellence, very many of which had not yet been disseminated, even in Europe. But although every exertion was used, we were yet enabled to save, unitedly, not over one hundred kinds; and, through the liberality of the London Horticultural Society, we also received over fifty new kinds of Pears, besides some other varieties, chiefly Flemish, and which have been proved in their celebrated garden of Chiswick to be of great excellence. This number, and from this source, we have also been enabled to save. We look, however, for the renewals, and to complete our lists from both sources, of all that is excellent. All these will be put to immediate trial, and the results the public may in due time depend on knowing.

During the last thirty years, more kinds of pears of celebrated excellence have originated in Belgium, than all that ever existed before. This is principally to be ascribed to the distinguished zeal and successful experiments of Van Mons, and of Hardenpont, of Coloma, of Meuris, of Nelis, of Duquesne, of Dorlain, of Liart, and of others.

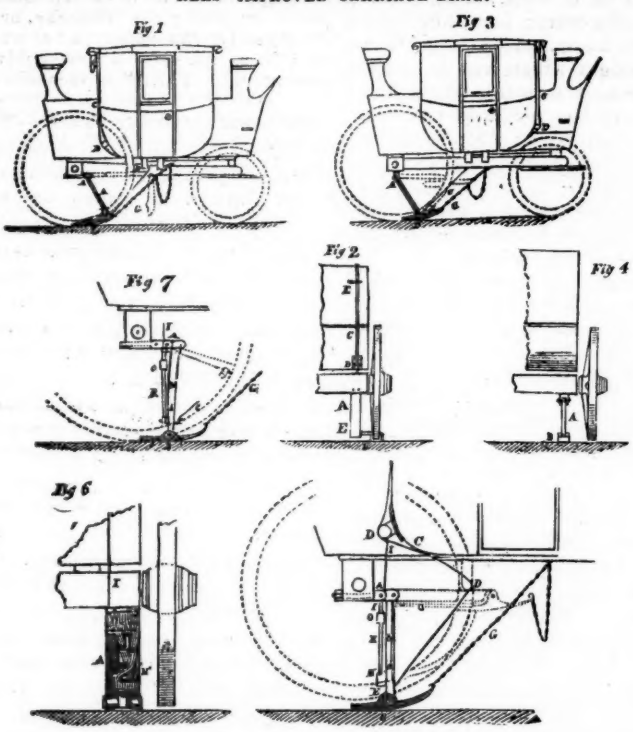
Dr. Van Mons, and the Abbe Duquesne, are stated to have originated more than eight hundred fine kinds of pears, with experiments on eighty thousand, and on a vast scale. Their practice seems to have been, in many respects, the reverse of all the popular theories of the day—the results unlike any thing of the kind before nown.

William Kenrick.

Newton, Dec. 24, 1834.

Animal Instinct.—A seaman, belonging to the wood-party of a ship upon the coast of Africa, had straggled with his companions, and was using his axe freely in the wood, when a large lioness approached him, face to face. The man, for the first moments, gave himself up for lost; but very soon afterwards he began to perceive that the manner and expression of countenance of the lioness was mild, and even mournful, and that he had no danger to apprehend from her. She looked at him, and then behind her, and upward into the trees, and went a few steps from him upon the path by which she came; and then returned, and went again, and acted, in short, much as a dog would act that wished you to follow him. The seaman yielded to her obvious desire, and she led him some little distance, till, near the foot of a tall tree, she stopped, and looked up, with plaintive cries, into its branches. The seaman, directed by her eyes and gestures, looked upward also, and soon discovered, at a considerable height, an ape, dandling and playing with a cub lion, which he had carried thither for his amusement. The wants and wishes of the lioness were now easily understood. The lion species, though usually reckoned among the species of cat, differ absolutely from it in this, as in many other particulars, that it cannot ascend a tree; a distinction, by the way, which ought to satisfy us at once of the error of those who talk to us of lions in America, where in reality there is no lion, and where the puma and jaguar, which they call lions, so readily ascend a tree. But equally in vain would it have been for the sailor to climb after the cub; for the ape, at the best, would have enjoyed the frolic of leaping with his plaything from branch to branch, or from tree to tree, as he approached. The only chance, therefore, was to fell the tree before the ape, seated near its top, should have the sagacity to provide against the effect of the strokes of the axe at its bottom. To work, therefore, he went—the lioness, which had seen other trees fallen by the axe of the stranger, standing by, and impatiently waiting the event. The ape kept his seat till the tree fell, and then fell with it; and the lioness, the moment the robber reached the ground, sprang upon him with the swiftness and sureness of a cat springing upon a mouse, killed him, and then, taking her cub in her mouth, walked contentedly away from the benefactor to whose skill and friendly assistance she had made her sorrowful appeal! "I can so much the more readily," observed Mr. Gubbins, "believe that even wild animals should put faith in the skill and helping disposition of mankind, as I have myself met with a few striking examples of that faith and expectation in domesticated species, to whose observations, however, the human arts and powers must be more familiar. A short time since I was riding over a common, at some distance from my house, when a pig, which, in the course of feeding, had so twisted the triangular yoke upon his neck that the narrow portion of it pinched his throat and threatened him with suffocation—no sooner saw me, than he came as near as to the fore-feet of my horse, foaming at the mouth, and struggling to overcome his difficulty. That he believed in the power of a man to assist him was evident; but he had also his fears of that human power, as possibly more dangerous to his throat than all the pressure of his inverted yoke; so that whenever I alighted from my horse with the design of helping him he ran away, and yet, as soon as I was again seated, he returned, continuing to travel with me, close to the horse's fore-feet, or as near to my own person as he was able, his mouth still foaming, and his efforts to escape suffocation still prolonged. In the end, seeing a farm-house a little upon one side of my road, I pulled my bridle that way, the pig still accompanying me, till, reaching the yard-gate, I called to some of the people and apprised them of the pig's presence and misfortune, as my best means of promoting his relief.—[Burford Cottage, &c.]

REES' IMPROVED CARRIAGE-DRAG.



[From the Repertory of Patent Inventions.]

Specification of the Patent granted to DAVID REES, *of Brecon, South Wales, Woollen Manufacturer, for Improvements on Drags or Apparatus to be applied to Carriages.*—Sealed August 7, 1833.

To all to whom these presents shall come, &c. &c.—*Now know ye*, that in compliance with the said proviso, I, the said David Rees, do hereby declare that the nature of my said invention, and the manner in which the same is to be performed, are particularly described and ascertained in and by the following description thereof, reference being had to the drawing hereunto annexed, and to the figures and letters marked thereon, (that is to say):

Figs. 1 and 2 represent a side view, and so much of a carriage as is necessary to exhibit the application of my improved apparatus which consists of a drag. In the side view the drag is attached, in a working position, as having shod the wheel which does not require to have the progress of the vehicle impeded, to render it beneficially useful. A is the frame attached to the axletree of the carriage; B, the shoe; C, the strap, or chain, which is attached to the frame at E, passing over the friction pullies, D, D, to the fixed catch, F, at the back of the carriage, where it is made fast by the coachman or guard; G is the drag-chain. The apparatus when out of use will assume the position under the carriage as shown by the drag and appendages in red color.* To put the apparatus in motion, the driver or guard of the coach has only to slip the strap or chain off the catch, F, and it will of itself fall down into action as represented.

Figs. 3 and 4 are similar views of another construction of drag, intended to raise the wheel and support the carriage, so that it may diminish the speed of the vehicle going down declivities. In all the figures, similar letters distinguish the respective parts. A is the frame; B, the skid; C, the strap or chain which is attached at E, passing over the pullies, D, D, to the fixed catch, F, on the front of the coach, where it is as in the before-described figure made fast by the coachman or guard.

Figs. 5 and 6 are a side and back view of another description of drag, constructed for the purpose of being drawn up whilst the carriage is in motion. These figures are drawn to represent the apparatus in operation in the same manner as before described. The manner of effecting this will be seen on reference to fig. 7, which exhibits a side view of the drag with the catch, H, unlatched; to unlatch this catch, it is only necessary for the driver or guard to pull the strap, I, attached to the eye of the lever, K, as seen in fig. 6, when it becomes sufficiently removed to allow the catch to liberate itself from the latch, L, which is kept down in position by the spring, M. The guard or staple plate, O, is intended to retain the lever in its proper situation. Upon removing the catch by the means described, the wheel of the carriage again comes in contact with the ground to support the vehicle, and the drag may be taken up to the position shown in red color* under the body of the carriage. Now, whereas it is evident by the foregoing description, that my improvements on drags or apparatus to be applied to carriages are applicable to every description of wheeled carriages, only varying the length and substance according to the diameter of the wheels, and weight of the carriage; and I therefore claim as my invention the application of the whole of the above combination as herein represented and described, without limiting myself to the use of any particular material.—In witness whereof, &c.

Enrolled January 7, 1834.

* Shown by dotted lines in the engraving.

* Shown by dotted lines in the engraving.

[From the Journal of the Franklin Institute.]

Note relating to the hardening of Lime under Water, by the action of Carbonate of Potassa, &c., and to the hardening of Carbonate of Lime in the Air, by Potassa and Soda. By A. D. BACHE, *Prof. of Nat. Philos. and Chem., Univ. Penn.*

The following experiments were made more than eighteen months since, and were suggested particularly at the time by the article of Professor Emmett, on the solidification of raw gypsum in the air, by the action of the alkali, potassa, and of certain of its salts. They commenced with an examination of the effect of certain salts of potassa and soda, and of caustic soda, on the hardening of carbonate of lime, and of common lime, in the air; and, by a natural transition, to a more interesting subject, the effect of these, and of other materials, on the hardening of lime under water. Not having leisure to prosecute this subject, I am induced to publish the results already obtained, that by attracting the attention of some one who may be favorably situated for carrying out the course of experiment which they suggest, it may be carried forward to completion. The conclusions cannot fail to be of interest, both in a practical and theoretical point of view.

It is well known that certain impure limestones yield, when calcined, a lime which hardens under water, technically called hydraulic lime. Experimenters, who have examined these limestones, with a view to determine the ingredient giving this hydraulic property, have not agreed in their conclusions; the essential ingredient has been in turn supposed to be silica, alumina, oxide of iron, and oxide of manganese. My friend, Col. Totten, informs me that Col. Troussat, in a recent work on mortars, attributes this power of conferring hydraulic properties upon lime, in certain cases, to soda—an ingredient which, before his examination, had not, I believe, been detected in any hydraulic limestones.

The method of ascertaining the effect of the substances experimented upon, in causing lime to harden under water, was similar to that employed by Raucourt, and described in his work on mortars. The mixture having been made, and brought to a paste of a proper consistency, was placed at the bottom of a glass vessel, and water poured gently upon it. A wire stem, terminated at one extremity by a wooden disk, was

placed vertically upon the mixture in the vessel, and the weight ascertained which was required to pierce the mass; the hole thus made being filled up, by tamping the mixture with a blunt stick, it was allowed to remain exposed to the action of the water for any desired length of time, and then subjected again to a similar trial.

As almost all common lime is slightly hydraulic, an examination of that to be used in the experiment was first made; having been slaked, and, when made into a thick paste, placed at the bottom of a wine-glass, and water added, the test stem was applied, the mixture having set, bore 1 oz. troy upon the head of the stem; after an exposure of one day, the mass bore 1½ oz.; and after two days, bore 3¼ oz.; it had then been so far disturbed, that it would not resume its cohesion.

This *common lime* was thus shown to *possess feeble hydraulic properties.* When mixed with sand and water, so as to form a tolerably rich mortar, the mass, after it had set, bore 5¼ oz. on the rod, and, after two days, 7 ounces, which was the maximum weight borne. In *its mixture with sand,* this lime formed a *mortar which was feebly hydraulic.*

Some of this lime was mixed with caustic hydrate of soda, which, however, had a portion of adhering carbonate. The proportion of soda added was not particularly attended to; it was, however, much less in weight than the lime. The mass became so soft, that when, after tamping in the bottom of the glass, water was added, the test rod penetrated it freely. After one day, the mixture bore 4 oz. troy, upon the wooden disk at the top of the rod; after another day, 5½ oz., which was the maximum. It recovered this strength twice, by the interval of a day between the times at which it was disturbed by the penetration of the rod. *Soda,* it then appears, renders lime, to a certain extent, capable of setting under water.

Lime being made into a paste, with soda and water, acquired considerable consistency in the air.

When lime was made into a thick paste, with a solution of carbonate of soda, and exposed to the air, it crumbled into dust; this being mixed again with water, assumed consistency at first, but subsequently crumbled.

Lime did not set in the air, when mixed with a solution of sulphate of soda; the incoherent mass was pulverized, and re-set with water, which increased the cohesion, but not very materially. Under water, the paste of lime and sulphate of soda, four parts of lime by weight, and one of sulphate of soda, bore 9 oz.; but on the very next day lost its cohesion.

Carbonate of potassa, mixed with lime, in the proportion of six, by weight, of the salt, to two of lime, formed a mass which crumbled in the air; but, being re-set with water, assumed considerable cohesion.

This same mixture had hydraulic properties; for 4 oz. of lime, 2 of carb. potassa, and 11 oz. of water, being mixed and placed under water, bore, after two days' exposure, 64 oz., or 5⅓ lbs., which was all the weight which was at hand. A mass of the same mixture, which had been exposed to the air, and was but slightly coherent, being placed under water, became quite hard.

An attempt was made, by reducing the proportion of carbonate of potassa to about 12 per cent., to harden the lime in the air; but it did not succeed.

A curious effect was produced by *soda,* and by *potassa,* on *carbonate of lime,* reduced to powder, and, after mixture with alkali and water into a paste, exposed to the air. The carbonate became, in one case, harder than the original material, and in another, but little inferior to it in hardness; in the former case, the experiment was made upon chalk; in the latter, upon Carrara marble. The marble had very nearly the appearance of the original material, and a cast taken from it would have had a beautiful appearance, very different from the dull white of plaster of Paris. Neither of these mixtures was hydraulic; and when a mass of chalk and soda, which had hardened in the air, was placed in water, it was completely disintegrated.

I had, at the time of making these experiments, a quantity of silica, which had been prepared by passing fluo-silicic acid into water, and which, never having been heated, was still soluble, though, of course, in a small degree; after repeated washings, it still restored the red color of alkanet, which had been rendered purple by a feeble alkaline action. This silica was mixed with lime and water, so as to form a paste, and being placed under water, would not bear the weight of the test rod; it was exposed for four days, and was softer, at the end of the trial, than at the beginning.

Perennial Rye Grass.—Last spring I procured a small quantity of the seed of the Perennial rye grass, and sowed them in my garden. My object was to ascertain whether it was adapted to our climate; and how far, from the smallness of the experiment, it might prove an acquisition in our rural management. The seed came up well, but during the heat and drought of summer, some of the plants perished. The grass made but an indifferent appearance until the rains commenced in the fall; after which it put forth rapidly, and has exhibited a most luxuriant growth ever since. Even at this time, though the thermometer has been as low as ten degrees, and the season generally quite cold, the blades are perfectly green, not showing the slightest appearance of having been nipped by the frost. It is decidedly the most beautiful grass I have ever seen, except perhaps the English grass, or greensward, which it closely resembles in the length and glossiness of its spears. The bunches are large, and the blades very long. Encouraged by the flattering result of this trial, I have purchased a few bushels for the purpose of sowing a lot: and I think I may confidently recommend others to do the same. There can be no doubt of its being well adapted to the soil and climate of New-York, judging from the hardness with which it resists the cold. The quantity of herbage afforded by the Rye grass appears so far to exceed considerably that of Orchard grass, Timothy, or the tall Oat grass, [*Avena elatior,*] all of which, but particularly the last, I have cultivated to some extent. T. S. P.—[Genesee Far.]

Orchards on Rocky Farms.—The farm on which I now am has no orchard, either of apple or peach. A considerable part is rocky. Instead of setting out my fruit trees in a regular orchard, it is my intention to place them in various parts of the farm, where they will occupy comparatively no portion of the productive ground. In some fields there are rocky places, which cannot be ploughed, but which will grow three or four trees. Often a detached large rock occurs, on the south side of which I shall place a fruit tree, the shade of which will be principally on the rock. I find that I can set out several hundred fruit trees without encroaching on my tillable land one-fifth of an acre. There are advantages and disadvantages attending this method. The saving of the ground I conceive to be of very considerable importance, particularly where it is valuable. Standing singly, or in small clusters, the fruit will receive more light and sun, and consequently ripen better. The trees having many different exposures, there will seldom be a general failure of fruit. It gives more varied interest to a farm, and is, perhaps, more picturesque. For some rocky farms this method is better adapted than others, especially for those that may be divided into smaller farms. The disadvantages are, that live stock cannot be so conveniently kept from the fruit, and that it is more inconvenient to gather the fruit. If any of the readers of the Farmer know of other disadvantages, I should be pleased to know them through its columns before the time to set them out. S. F.

January 24, 1835.

Pale or Picket Fence.—One way of making this kind of fence is to nail both of the rails on the face of the posts. This is the *weakest* manner in which you can build it. Another way is to frame the lower rail into the posts, and nail the upper one on the top of the posts. The objections to this are, the difficulty of repairs when they are needed, and the liability to decay occasioned by the retention of water in the mortices. This is a stronger but more expensive way than the one first mentioned.

Another way is this: If your fence faces the quarter from which the strongest winds usually blow, set the posts with the tops leaning an inch and a half over the bottoms—nail the lower rail on the face of the posts, and the upper rail on the top, even with the face edge of the post. You will find, that in putting on the pales, they will stand perpendicular, the thickness of the lower rail being equal to the projection of the top of the post. The reasons in favor of this are—First, the posts are braced against the wind; second, one rail being placed edgewise, it is the strongest way you can build it, because the pressure against the fence must come against that part of the rail most capable of bearing resistance; thirdly, it looks well, because the tops of the posts being sawed off to receive the

top rail, nothing is seen but the pales. There is no difficulty in setting the posts, for if you use a plumb line, it is as easy to slant them exactly one and a half or two inches, as it is to set them perpendicular. The paling is sharpened with an axe, and then nailed on by a top line. The distance of the pales from each other, and the nature of the ground, will determine the necessity of a bottom board. PERCY. — [Genesee Farmer.]

RULES FOR MAKING RAIL FENCE.—Simple as the business of making rail fence is considered, it is pretty evident but few farmers have any system or rules by which they govern themselves in this indispensable part of farming. Although the following rules may be well known to most well bred farmers, yet they may be found useful to others who have not been taught in all the arts and mysteries of agriculture.

1. How to know when you have drawn a sufficient number of rails for a given distance of fence. If the fence is to be seven rails high, (which is sufficient if the rails are of good size,) and the rails are twelve feet long, place them in piles of ten each, the piles touching each other in a continuous line.

2. Place, in range, stakes or poles sufficiently often to clearly designate the line. Prepare a pole seven or eight feet long, well sharpened at one end, and, if much used, the end ought be pointed with iron; at about eighteen inches from the pointed end, fasten a rod at right angles with the pole, and extending thence from three feet, two, four, or six inches, according as the fence is exposed to winds. Three feet two inches makes a handsome fence. Stick down this pole in range with the poles designating the line, and the end of the rod will show the place for the corner. Place, then, for a foundation, a good sized flat stone, and you are ready to commence operations.

3. The bottom rail should be sound and straight. Place the largest end forward on the stone, and the other end crossing the preceding rail at the end of the rod of the ranging pole, so that the corners on each side be in exact line.

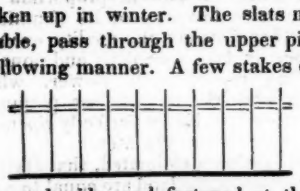
4. Let the five following rails be placed the smallest end forward, and notched, if necessary to make them lie steadily.

5. Let the top rail be heavy and well notched, the largest end placed forward, and your fence is done.

The object of having the largest end of the bottom rail placed forward, is to have less space between the rails for pigs and geese; and having the top rail the largest end forward, leaves the fence level and of equal height throughout.

There is no sight more pleasing to a Genesee farmer, than a well made rail fence. M. A.—[Genesee Farmer.]

WATER FENCE.—Generally, this is the most difficult fence to keep in repair. Winds, ice, or tides, cause frequent damage. An aged farmer recommends them to be made like a ladder, so that they can be taken up in winter. The slats may, if desirable, pass through the upper piece in the following manner. A few stakes driven



down each side, and fastened at the top, will keep the fence in place. S. F.

CHINESE GONGS. — We have been furnished by a friend with several numbers of the *Asiatic Journal*, in which we find the following description of the composition and manufacture of the "Chinese Gong," an article now much in use in hotels. They are, especially to those unaccustomed to early rising, instruments of "horrible music;" yet, to many, an article of considerable interest, as it has often been said, and by many believed, that they cannot be made in this country.

Composition of Chinese Gongs.—In the Annals de Chimie for November, there is the following account of the Chinese process of manufacturing gongs and cymbals, translated by M. St. Julien from the Teen-kong-kae-weh, a Chinese encyclopædia of arts and manufactures:

"The red copper, used in making musical instruments, must be alloyed with mountain-tin,* which does not contain a particle (*lit.* a vapor) of lead. In order to make gongs (*lo*), &c., eight pounds of copper are alloyed with two pounds of tin. If you wish to make little bells or cymbals, the red copper and the tin must be much purer and finer than for gongs.

"When a gong is to be made, it must not be cast in the form it is to have, and then forged with the hammer. You must begin by founding a thick sheet of metal, which must be cut round, and then beaten with the hammer. For this last purpose, the round sheet of metal must be spread upon the ground, and if the instrument is required to be of large size, four or five workmen must be placed around, to hammer it. The sheet will spread out and enlarge under the hammer, and its edges will rise up. Then the instrument will begin to emit sounds, resembling those of a musical cord. All these sounds proceed from the points which the hammer has struck (*lit.* from the points struck by the *cold* hammer.) In the centre of this drum of copper, a boss or round elevation is formed, which is struck, and the blows of the hammer give it the tone. Two tones are distinguished in the gong; the *male* tone and the *female* tone. Both depend upon the rising being less or greater than ought to be given, with rigorous exactness, to the boss, according as one or other is desired. By doubling the blows of the hammer, the instrument acquires a grave tone."

M. Darcet, in a note upon this translation, observes: "The only thing I find correct in this account is the composition of the alloy, of which the Chinese author states these instruments are formed. I have analysed seven gongs and twenty-two cymbals, and I have always found, in 100 parts, about 80 of copper and 20 of tin. It is true, about five or six years ago, an original letter was communicated to me from a missionary, which stated that gongs contained, besides copper and tin, $\frac{8}{100}$ of bismuth; but the properties of this alloy and the result of the analyses just mentioned, show that the workman deceived the missionary on this point. I regard then, as a fact proved, that these gongs and cymbals are composed of an alloy formed with 80 parts copper and 20 of tin; but this is far from sufficient to enable us to fabricate these instruments; for this alloy is as brittle as glass, and if it be used, as it comes from the crucible, it would be not only impossible to forge it, but even to use such instruments, merely cast with this alloy, without their breaking. This happened to an untempered gong, which had been made at the school of Chalons for the king of Prussia, and to the gong at the opera, which being cracked, was heated in order that it might be mended with silver solder. The alloy of 80 parts copper and 20 of tin is so brittle, especially when hot, that it may be reduced to powder. This alloy has great density; its grain is very fine, and its fracture almost as white as that of bellmetal. Chinese gongs and cymbals, on the contrary, have a small specific gravity, and a fibrous fracture exhibiting the color of the alloy, of 90 parts copper and 10 tin, used for cannon. Fragments of gongs and cymbals, far from breaking under the pestle, are malleable, and may, moreover, be bent till the two sides of the piece form together an angle of 130 or 140 degrees, without breaking. It follows clearly from this comparison, that gongs and cymbals cannot be fabricated as the Chinese author pretends; that it is only by means of some peculiar process, some sleight of hand, that an alloy of 80 parts copper and 20 tin can be employed in this manufacture. This secret consists in tempering the alloy; in fact, when heated to a dull cherry red, and plunged into cold water, it takes instantly all the physical characters of the gong and cymbals: I have manufactured by this process upwards of sixty pairs of cymbals, and experience has fully justified what I have stated.

Nothing is said in the Chinese account about tempering; yet without this operation, it is impossible to fabricate these articles. As to the mode of making them, the alloy of 80 parts copper and 20 tin, even when tempered, cannot possibly be forced, and especially beaten out. All the Chinese author says about casting the alloy in the form of a plate and beating it out with the hammer, is a mere fiction, imposed upon him by a Chinese artificer, just as our artificers endeavor to mislead curious visitors in our manufactories. The following method is, in my opinion, the true one.

"The model of the instrument is forged in red copper or brass; to this model is given exactly all the desired forms, by making the face of the hammer penetrate more or less on the two surfaces, so as to form that continuity of spherical hollows and salient parts we see upon cymbals, and especially gongs. When the model is finished, it is employed to make a mould in sand, in putty, or in metal. An alloy of 80 parts of pure copper and 20 of fine tin is prepared, which is run into an ingot; it is then re-cast and run into the mould. The piece, when taken out of the mould, is rough-scraped; it is tempered as is done with steel. If it is misshapen, by plunging it red hot into cold water, the shape may be rectified by the hammer and by flattening it with gentle blows. The required tone may be given, either at first, by forcing the temper more or less, or afterwards, by hammering; it is polished by means of a lathe, as is done with saucepans of copper or brass, and the instrument is finished."

Buildings of Canton.—In the buildings of Canton, we have doubtless as great a variety of structure and style, and as fair specimens of Chinese taste and art, as can be found in the whole empire. A large part of the city and suburbs is built on low ground or flats. Special care, therefore, is requisite in order to secure for houses and temples a solid basis. Near the river, and in all the most loose or muddy situations,

* The Chinese have two sorts of tin, mountain-tin and river-tin; both are found in the province of Kwang-se.

houses are raised on wooden piles, which make the foundation as secure as brick or stone, and perhaps more so. In some cases, the piles rise above the surface of the ground, and then the buildings, constructed of wood, rest directly on them; but, in other instances, the piles reach only within a few feet of the surface, and the remaining part of the foundation is made of mud, brick, or stone. When this is done, the walls of the houses are usually carried up and completed with the same material. Not a few of the houses are entirely baseless, or have only a slender foundation of mud, of which also their walls are composed; and hence, in severe rain-storms and overflowings of the river, many of the walls are prostrated.

Bricks are in most general use for the walls of houses; perhaps three-fifths of the whole city are built of this material; of the remaining part, a very large portion is constructed of mud: most of the Tartars in the old city inhabit houses of this description. Stone and wood are not very extensively used for the walls of houses; the first is frequently employed about gateways and for door-posts; and the second for columns, beams, and rafters. Many of the floors of houses and temples are formed of indurated mud; marble flags are sometimes used for the same purpose, and often tiles. The latter, when made very thin, are used for roofs; they are laid on the rafters in rows alternately concave and convex, and forming ridges and furrows, luted by a cement of clay. Windows are small, and rarely supplied with glass; paper, mica, or shell, or some other similar translucent substances, taking its place. Very little iron is employed in building houses.

Such is the general style, and the usual material, of the buildings of Canton. In passing through the streets of the city, the spectator is struck with the difference he finds in its various buildings—though this diversity does by no means fully exhibit the relative condition and circumstances of the people. A few only are rich; and the external appearance of their houses does not at all exceed in elegance those of the middling class. Many are very poor; and the aspect of their habitations exhibits abundant evidence of their abject state. The poorest people are to be found in the extreme parts of the suburbs, along the banks of the canals, and in the northern part of the old city; their houses are mere mud hovels—low, narrow, dark, uncleanly, and without any division of apartments. A whole family of six, eight, ten, and sometimes twice that number of individuals, is crowded into one of these dreary abodes. It is surprising that people can live, and enjoy health, and even long life, in these circumstances. To pass through the streets or lanes of such a neighborhood, is sufficient to reconcile a person to any ordinary condition of life. Neither intelligence nor industry could ever be confined in such miserable cells.

In habitations a little more spacious and cleanly than these, perhaps one-third part of the population of Canton have their abodes. These stand close on the streets, and have usually but a single entrance, which is closed by a bamboo screen suspended from the top of the door. Within these houses there are no superfluous apartments: a single room, allotted to each branch of the family, serves for a dormitory, while a third, which completes the number into which the whole enclosure is divided, is used by all the household as a common eating-room. Chinese houses usually open towards the south; but in these, as also in the poorer kind, this favorite position is disregarded. Houses of this description are rented at four or five dollars a month.—[Chinese Repos.]

[From the N. E. Farmer of Jan. 21.]

DIFFERENCE OF TEMPERATURE IN HILLS AND VALLEYS.

Mr. Editor,—On receiving your yesterday's paper this evening, I hit upon Mr. Breck's account of the extreme cold weather last week; and, indeed, sir, we could testify to the same degree of cold in this section, in low situations, the thermometer ranging from 32 degrees to 37 degrees. But to Mr. B.'s queries, "why it is colder in a valley than on hills, when we know that the higher we ascend beyond a certain elevation, the colder it is; and if there had been wind on Sunday morning, would there have been any difference between the temperature of the hills and valleys?"

It is computed, that the air or atmosphere extends about 45 miles above the surface of the earth; and it is satisfactorily evident, that the air is much more dense on the earth's surface than in higher altitudes; and as the air is a conductor of heat, its power as such increases in an exact ratio with its density; else, how can we account for the greater degree of cold in the higher regions in hot weather, where the rays of the sun are not so numerously and readily transmitted, and consequently not so concentrated as in the lower portions of the earth? Therefore, as the air is a good conductor of caloric, or heat, and its powers as a conductor are augmented with its greater density, and as the density of it is greater in the valleys than on the hills, it must consequently be warmer in the valleys in the summer, and colder in the still cold weather of winter. The air during the long days of midsummer receives proportionably more of the sun's rays, because they are more concentrated, *coming more direct*, so that the shortness of its absence during the night does not admit of its cooling down to any perceptible degree more in the valleys than on ordinary hills, without some additional cause; but change the duration, with the great obliquity of the sun's rays in winter, and in serene cold weather, with the sun's short presence and long absence, the air acquires a proportionably greater degree of cold, according to its greater density in the valleys, while deprived of the rays of the sun.

And in answer to the last quere, "had there been wind on Sunday morning, would there have been any difference between the temperature of the hills and valleys?" I should say, that very little, if any, would have been the case, as the air when greatly agitated, or put in motion, causes more uniform equilibrium of heat or cold to be maintained, consequently the variation cannot be much between the situations of our ordinary hills and the valleys, unless the valleys were so situated as not to be affected with the wind.

And should it be asked why we have some days colder than others? I should think it was owing to the course the air was taking at the time; the wind coming from the northern section gives an increase of cold, as the air is constantly changing its situation, and passing on to give place to succeeding supplies, for a number of days in succession, from a colder region, and thus continually increasing the cold, until some change shall be effected in the current, produced by the unerring laws of Nature, in restoring the equilibrium, by bringing about the necessary changes.

Should these hasty reflections be satisfactory, you are at liberty to make use of them. Yours, &c. A. G.

Amherst, N. H., Jan. 15, 1835.

By the Editor.—We have received another communication on the subject discussed by Mr. G., which we hope to publish in our next, together with some observations of our own.

[From the N. E. Farmer of Jan. 28.]

Mr. Fessenden:

I will give the following, in answer to the query of Mr. Breck, in a late Farmer. As warm air ascends, it follows of course that cold air will descend, and occupy the lowest places, in the absence of the sun. Mr. Breck says, it is known the higher you go the colder it is, probably so to the extent of the atmosphere; but cold must have its limits. I cannot conceive of its being colder than in a place where all heat is absent. It is probable, that if it were not for the sun's rays, that the atmosphere would be of uniform temperature; it is known that the sun's rays pass through a transparent body, like air, without heating it but little, if any; but, in striking the Earth, they there create heat; and by expanding the air, at the surface of the earth, cause it to ascend; and, in the absence of the sun during the night, the warmest air will be ascending, and the coldest descending. We will say that the sun shall be absent from Lancaster for a time sufficient, and that the atmosphere there shall be stationary, the coldest air would continue descending on the valley of the Nashua, and the warm ascending, until the temperature of the atmosphere from the surface of the earth, to its extremity, were equal.

With respect to the difference of cold in the valley, and on the hill, in time of calm, and a high wind, I will say, in answer, that when the atmosphere is moving over an uneven country, with great velocity, (what we call a high wind,) rising over the hills and descending into the valleys, forming various eddies and currents, it would naturally intermix the higher and lower temperatures of the air, and make the cold on the hill and in the valley more uniform than it would be in a still time; therefore, if there had been a wind at Lancaster on Sunday morning, the thermometer on the hill and in the valley would have ranged more uniform. Respectfully, yours, &c.

WM. KEITH.

West Roxbury, Jan. 15, 1835.

By the Editor.—Mr. Breck's queries are, in substance,—1st, Why is it colder during a severe frost, in a valley, than on hills adjacent? 2d, If there is wind in a very cold day, will there be any difference between the temperature of the hills and valleys?

It is well known that the mean temperature of any place depends on many circumstances, too numerous to be here recapitulated, besides its distance from the equator. Sir John Sinclair, in his Code of Agriculture, observes, "It may be remarked, that land in the same parallel of latitude, other circumstances being nearly similar, is always more valuable in proportion to the comparative lowness of its situation. In the higher districts, the quality even of the herbage is less succulent and nourishing, and the reproduction slower, when in grass, while the grain is less plump, runs more to straw, is less perfectly ripened, and the harvest is always later.

"It has been estimated, that sixty yards of elevation in the land are equal to a degree of latitude; or, in other words, that sixty yards perpendicular higher, are in respect

of climate equal to a degree more north."—[Code of Agr., p. 2–56.]

That the temperature, or mean warmth of a place, in the growing part of the season, is greater on low land than on high land, in the same latitude, appears from the fact that the spring is more backward and the harvest is much later on the heights of land between the Merrimack, Connecticut, and North Rivers, than in the valleys which are pervaded by these streams. Yet, in very cold weather, these high lands are the warmest. The causes of this difference have been well explained by our correspondents; but we will add a few words.

In the summer, or in warm weather, the source of heat is in the sun. His rays pervade the atmosphere, strike the earth's surface, are reflected from the points of contact, and warm the air most which is nearest the reflector. A valley, like that of the Nashua river, or the valley of the Connecticut, for instance, is a concave reflector, and serves to concentrate the sun's rays, and prevent their being so dissipated and diverged as to produce a comparatively small effect. If we might compare great things with small, and not be cut up by the critics for be-littling our subject, we should say the sun in summer was like a culinary fire, a valley like a thing called a tin-kitchen placed before said fire, and the air and other matters in and upon the surface of said valley like whatsoever may be placed to warm or roast in said utensil. But a hill, or high land presents a convex surface to the sun, and causes its rays to diverge instead of being concentrated, and (to pursue our sublime comparison) is like the back of said tin apparatus turned towards the fire.

But, in the winter time, and when the sun acts feebly, the earth, the waters and air, previously warmed, are the sources of what caloric or heat there is left. They give out warmth to particles of air with which they are in immediate contact, which particles ascend, are conducted up the sides of hills, &c., in consequence of their possessing less specific gravity. Cold air, as well as cold water, is heavier than warm air, or warm water, existing under about the same pressure of the superincumbent air or water. Of course, the particles of comparatively warm air slip from under the colder atoms above them, and make their way to higher ground. Thus, if you put oil in a vessel, and pour water upon it, the water will take the lowest part, because it is heaviest in proportion to its bulk.

With regard to the question, whether there would be any difference in a windy as well as a cold day between the temperature of hills and valleys, we should suppose the difference must be very little, if at all perceptible. Thus, oil and water shaken together in a bottle will, for a short time, appear to be united, but a little rest will cause the water to take its place below the oil.

Butter made in Cold Weather.—Mr. T. Whitmarsh, of Brookline, Mass. has favored us with a beautiful sample of butter, made on one of the coldest days of the past winter. It appears as fresh and yellow as if it had been manufactured in June from Durham Shorthorns fed upon honeysuckles, and Madam Ceres herself had officiated as dairy-maid. Mr. W. assures us that the cows, producing his exquisite butter, have had no food but hay, and attributes its superiority to keeping the milk and cream in a warm cellar, heated by a furnace, which at the same time keeps every room in the house at as high a temperature as can be wished for, in the coldest weather of the most inclement season.—[N. E. Farmer.]

Mass. Horticultural Society.

Saturday, January 17.

Apples.—By Mr. Manning—White Calville, very good; Bellflower, very beautiful; also, Michael Henry Pippin, as received from New-Jersey, but its genuineness is considered doubtful—a large oblong fruit, inclining to conical, of a green color, with a slight blush next the sun—of good flavor.

By Mr. Ruggles, of Fall river—Cork Russet, a large oblong fruit, of a green color, somewhat russetted—the flesh light and spongy, and inclining to shrivel—not very juicy or high flavored, but sweet; and evidently a valuable fruit for drying.

Important Discovery, perhaps.—I have been a constant reader of the American Farmer from the time of its first publication, and frequently referred to it, in hopes of finding an effectual remedy against the attack of the worm on peach trees. I found at different times a number of publications upon the subject, and believe have tried the greater part of the remedies therein prescribed, without success. Finally, I concluded that the old method of cutting the worm out with a penknife was the only one upon which any reliance could be placed, and have therefore been in the constant habit of preserving my trees in that way for years. I have, however, lately made an experiment, which I have every reason to believe is quite as effectual, and attended with much less trouble. About a year ago, after I had gone the rounds, laid bare the roots, and cleared my trees of the worm, I took some fine screenings of anthracite coal, and put about a quart or two to the roots of each tree; this was done to about the one half of my peach trees. Last fall I went round as usual to cut the worms; those trees which had the anthracite coal screenings about their roots, were, without a single exception, clear of worms,—the others had, as usual, a considerable number. I immediately applied the coal to the whole of my trees, and, thus far, am well pleased with my prospects of success. I propose continuing the experiment another year, after which I can speak with more certainty upon the subject; but the circumstance of that half of the trees upon which the experiment was made, although situated precisely like the others, having been found clear of worms, when the others were full of them, is strong evidence in my mind that the remedy will prove effectual. N.

Orwigsburgh, 25th January, 1835.

[Farmer & Gardener.]

The Gentleman's Pocket Farrier.—We commence in this number the publication of this little work, and shall complete it in the next, and then put it up in a book for the use and convenience of those who may desire to possess it.

The Gentleman's Pocket-Farrier: showing how to use your Horse on a Journey, and what Remedies are proper for Common Accidents that may befal him on the Road. By F. Tuffnell, Veterinary Surgeon.

try before you buy.

If you meet with a horse you like, and are desirous of buying him, do not fall in love with him before you ride him, for though he may be handsome, he may start or stumble.

to discover a stumbler.

If you go to buy of one that knows you, it is not unreasonable to desire to ride him for an hour. If refused, you may expect he has some faults; if not, mount him at the door of the stable where he stands; let him neither feel your spurs, nor see your whip; mount him easily, and when seated, go gently off with a loose rein, which will make him careless; and if he is a stumbler he will discover himself presently, especially if the road in which you ride him be any thing rough.

The best horse indeed may stumble, (a young one of spirit, if not properly broken, will frequently; and yet if he moves nimbly upon the bit, dividing his legs true, he may become a very good saddle-horse;) the best horse, I say, may stumble; but if he springs out, when he stumbles, as if he feared your whip or spur, depend upon it he is an old offender. A horse should never be struck for stumbling, or starting; the provocation, I confess, is great, but the fear of correction makes him worse.

In the purchase of a horse, examine four things—his teeth, his eyes, his legs, and his wind.

to know his age.

Every treatise on farriery has instructed us to know a horse's age by the mark in his mouth; but not one in five hundred, (a dealer excepted,) can retain it in his mind.

Every horse has six teeth before in each jaw; till he is two years and a half old, they are all smooth and uniform in their upper surfaces.

At two years and a half old he sheds the two middle teeth, (by the young teeth's rising and forcing the old ones out,) which at three years old are replaced by two hollow ones.

When he is about three years and a half old, he sheds two others, one on each side the two middle ones, which, at four years old, are replaced by two others, which are also hollow.

The sharp single teeth in horses begin to appear in the lower jaw when the horse is about three years and a half, or four years old. When he is nearly six years old, they are full grown, pointed, and concave in the inside.

When he is four years and a half old, he sheds the two corner teeth, which at five are replaced also with two hollow ones, grooved on the inside, which groove marks the age precisely.

At six years of age, this groove begins to fill up, and disappear; so do the hollows of the rest of the teeth, which continue to near seven and a half, or eight years old, when all the teeth become uniformly full and smooth.

Crafty jockeys will sometimes burn holes in the teeth, to make them appear young, which they call bishoping; but a discerning eye will soon discover the cheat.

eyes.

If a horse's eyes are lively and clear, and you can see to the bottom, and the image of your face be reflected from thence, and not from the surface of the eye, they are good; but if muddy, cloudy, or coal black, they are bad.

legs.

If his knees are not broken, nor stand bending and trembling forward, (which is called knuckling,) his legs may be good; but if he steps short, and digs his toes in the ground, it is a sign he will knuckle. In short, if the hoof be pretty flat, and not curled, you need not fear a founder.

wind.

If his flanks beat even and slow, his wind may be good, but if they heave double and irregular, or if, (while he stands in the stable,) he blows at the nostrils, as if he had just been galloping, they are signs of a broken wind. Deceitful dealers have a draught which they sometimes give, to

make a horse breathe regularly in the stable; the surest way therefore to judge of his wind is to give him a good brushing gallop, and it is ten to one, if his wind be broken, or even touched, that he will cough and wheeze very much, and no medicine can prevent him doing so.

CURE FOR A BROKEN WIND.

A broken wind may be cured, if the following be applied on the discovery of it: A quarter of a pound of common tar, and the like quantity of honey; beat them well together, then dissolve them in a quart of new milk; let the horse fast two hours before you give the drench; walk him an hour after, and let him fast two hours; give this drench every second day with warm meat and drink.

A DRAUGHT-HORSE.

A horse with thick shoulders and a broad chest laden with flesh, hanging too forward, and heavily projecting over his knees and feet, is fitter for a collar than a saddle.

A SADDLE-HORSE.

A horse with thin shoulders, and a flat chest, whose fore-feet stand boldly forward and even, his neck rising semi-circularly from the points of those thin shoulders to his head, may justly be said to have a light fore-hand, and be fitter for a saddle than a collar. Most horses in the hands of farmers are drawn while they are young, which, notwithstanding their make, occasions them to move heavily; if you desire a nimble-footed horse, choose one that has never drawn.

In buying a horse inquire into four things, to wit: biting, kicking, stopping, and starting.

A horse may be sound, though guilty of all four, which a man can hardly discover by barely looking on him; so I refer you to his keeper.

When you are buying, it is common for the owner to say in praise of his horse, that he has neither splint, spavin, nor windgall.

That you may not be imposed upon, those three are thus described:

THE SPLINT.

The splint is a fixed callous excrescence or hard knob, growing upon the flat of the in or outside, (and sometimes both,) of the shark-bone; a little under, and not far from the knee, and may be seen and felt.

To take it off, shave the part, and beat it with a stick, prick it with a nail in a flat stick, clap on a blistering plaster as strong as you can make it; let it lie on three days; then take it off, and rub the place with half a drachm of the oil of origanum, and as much oil of vitriol, mixed: if the first does not do, rub it a second time with the oils; if you find any remains of the splint, apply a second blistering plaster for twenty-four hours: walk him moderately, to prevent any swelling or excrescence from settling.

Most young horses have splints, more or less, and they will occasion lameness while they are coming upon the bone; but after they are grown to the firmness of bones, they do not lame a horse, nor is such a horse worse for use, though he may not look so well to the eye.

THE SPAVIN.

The spavin is of the same nature, and appears, in like manner, on the instep bone behind, not far below the hough. To take it off, beat the bone with a bleeding stick, and rub it; then anoint it with the oil of origanum, tie a wet cloth about it, and with a hot brick applied to it, soak in the oil, till it be dry.

WINDGALL.

Windgalls are several little swellings just above the fetlock joints of all the four legs; they seem, when felt, to be full of wind or jelly, but they never lame a horse; the splint or spavin always do. They all proceed from one and the same cause, which is hard riding, travelling too far in one day, or carrying too great a weight when young.

SETTING OUT ON A JOURNEY.

Whenever you intend to travel, hunt, or only ride out for the air, let your horse's feet be examined some time before, to see that his shoes are all fast and sit easy on his feet, for on that depends the pleasure and safety of your journey.

DIRECTIONS FOR MOUNTING.

Before you mount, look round your horse, to see if his bridle, curb, saddle, and girths, are all fitted in their proper places. Always accustom your horse to stand firm and without a motion, till you are fixed in your seat, and your clothes be adjusted.

DIRECTIONS FOR GOING.

When you would have him go, teach him to move by pressing close your knees, or speaking to him, without using whip or spur; for a horse will learn any thing, and a good quality may as easily be taught him as a bad one.

CORRECTION ILL-TIMED: CORRECTION WELL-TIMED: AN EASY REIN.

Most men whip and spur a horse, to make him go faster, before they bid him; but it is cruel treatment to beat a generous creature before you have signified your mind to him, (by some token which he may be taught to understand,) who would obey you if he knew your pleasure; it is time enough to correct him when he refuses, or resists you. Do not haul his head about with too tight a rein, it deadens his mouth; besides, he will carry you safer, and take better care of his steps with an easy hand, than a heavy one: much depends on the quietness of the bridle hand. Keep your elbows steady, and you cannot hurt his mouth. Again, nothing discovers a bad horseman, (even at a distance,) so much as throwing his arms and legs about; for it is easiest to the horse and rider, and he can carry you farther, by ten miles a day, when you sit as steady upon him as if you were a part of himself.

CUTTING.

If he cuts either before or behind, look that his shoes stand not with an edge beyond the hoof, and feel that the clinches of the nails lie close; but if cutting proceeds from interfering, that is, crossing his legs in his trot, it is a natural infirmity, and can only be a little helped by care. Horses will sometimes cut when leg-weary, which they will recover of by rest. If you would not have a horse that cuts, buy not one that stands with his toes turned outwards, nor one who, in trotting, carries his legs too near each other.

LAMENESS.—A POULTICE.

If, (as he stands in the stable,) you observe him to point one foot forwarder than the other, either before or behind, seeming to bear no weight on it, you may reasonably conclude he is not easy. If the shoe is the cause, the farrier can remove it presently; but if the foot is hurt by some unknown accident, make a poultice of any sort of greens, such as lettuce, cabbage, mallow leaves, turnip-tops, or turnips themselves, the best of all; boil them tender, squeeze the water out, chop them in a wooden bowl, with two or three ounces of hog's lard or butter; put this poultice into a cloth, and tie his foot in it all night, as hot as you can.

In the morning, when the farrier comes to take off his shoe, he will find his hoof cut soft and easy, so that he will soon discover, (in paring with his buttrice,) whether he is pricked or bruised.

BRUISED.

If bruised only, the next poultice will cure him.

PRICKED.—GRAVELLED.—THE CURE.

If pricked, or otherwise wounded to the quick, open the hole with a penknife, and drop a little diachilon or melilot, through a pair of warm tongs, into the hole, to suck out the gravel; but the horse-ointment is best, which I shall mention by and by; cover it close with dry tow, fastened in with a couple of splints, and put his foot, as before, into a hot poultice.

Repeat this till he is well, which will be in two nights, if you have not been too free with your penknife.

A CAUTION AGAINST THE FARRIER.

But let not the farrier put flaming turpentine to it, which will close the hole before the gravel is out: in this case, it must work out at the coronet above, and may require six months' time to cure it.

LAME IN THE HEEL OR HOOF.—A CURE.

If your horse is lame with a hole in his heel, or any part of his hoof, be it ever so deep, occasioned by an over-reach of his hind foot, or a tread of another horse, though gravel be in it, put his foot into the aforesaid poultice, and repeat it morning and evenings till it is well; for it will suck it out, fill it again with sound flesh, and make the hoof grow over it, much sooner than any other method or medicine whatsoever.

A CAUTION.

The farrier's practice is to put caustics into such holes, (a composition of mercury, lime, vitriol, and the like,) to burn them; and to cut a quarter of the hoof away, to come to the bottom, as they say, which requires about six months to make it good again; but oftener ends, if not always, in an unsound club foot.

CUTS, TREADS, AND BRUISES, CURED.

All cuts, treads, and bruises, are cured by this poultice; not only soonest and safest, but without leaving any mark.

THE HORSE OINTMENT.

Into a clean pipkin, that holds a quart, put the bigness of a pullet's egg of yellow rosin; when it is melted over a middling fire, add the same quantity of bees-wax; when that is melted, put in half a pound of hog's lard; when it is dissolved, put in two ounces of honey; when that is dissolved, put in half a pound of common turpentine; keep it gently boiling, stirring it with a stick all the time; when the turpentine is dissolved, put in two ounces of verdigris; you must take off the pipkin, (else it will rise into the fire in a moment,) set it on again, and give it two or three wambles, and strain it, through a coarse sieve, into a clean vessel, for use, throwing the dregs away.

This is an extraordinary ointment for a wound or bruise in flesh or hoof, broken knees, galled backs, bites, cracked heels, mallenders, or, when you geld a horse, to heal and keep the flies away; nothing takes fire out of a burn or scald in human flesh so soon; I have had personal experience of it. I had it out of Degrey; but, finding it apt to heal a wound at the top, before the bottom was sound, I improved it, by adding an ounce of verdigris.

HEAT BALLS.

If, upon a journey, any little bumps, called heat-balls, should rise on your horse's shoulder, or any part of him, upon coming to your inn, order the hostler to rub them often with hot vinegar, which will disperse them. They are owing to the heat of the body in hard riding. If they are not dispersed, they will burst and look ugly, and it

will be some time before the hair comes upon the part again.

SWELLED AND CRACKED HEELS.

If his legs and heels should swell and crack, and become stiff and sore, so that he can hardly be got out of the stable in the morning, and perhaps did not lie down all night, you may travel on, but walk him for the first mile or two, very gently, till the swelling falls, and he begins to feel his legs.

When you end the day's journey, wash his fore-legs with warm water, and a great deal of soap; or foment his heels, (first cutting away the hair very close,) with old urine, pretty warm, for a quarter of an hour, by dipping a woollen cloth, or an old stocking, into the urine, squeezing it, and then applying it to the part affected, having first well washed it with the urine. You may then prepare the poultice, (see Lameness,) and tie it on hot, as soon as it can be got ready, letting it stay on all night. Feed him as usual, and offer him warm water in the house. About nine or ten o'clock, (that is, an hour or two after he is put up for all night, and fed,) give him

A BALL.

Half an ounce of Æthiop's mineral; ditto of balsam of sulphur terib; ditto of diapente or powdered aniseed; mixed and made into a ball with honey or treacle. You may give him a pint of warm ale after it.

Do not stir him out of the stable, on any account whatever, till you mount him the next morning for your journey; and give him a draught of warm water in the stable before you set out, (that being proper on account of the ball.) When you are on the road, he may drink water as usual.

The next night omit the ball, but continue the poultice. The third night give the second ball.

GREASING HEELS.

The fifth night give the third ball, and still continue the poultice till his heels are well: but, if you can get no sort of poulticing, then melt hog's lard, or butter, and, with a rabbit's foot, or a rag, grease his heels with it very hot.

If he is a young horse, and the distemper new, you will hear no more of it; but if he is old, and has had it a long time on him, it will require further repetition.

N. B.—During this operation, you must not gallop on the road, but ride moderately, for sweating will retard the cure. You must consider that wet weather and wet roads are by no means proper for this regimen.

Travelling, indeed, is an improper time for this cure, except in cases of necessity: if you can give your horse rest, his heels will get well sooner by turning him out to grass, and renewing the poultices; but he should be kept in the stable while he takes the medicine. If the greasy poultice does not effect a cure, which may sometimes be the case, after fomenting the legs with the urine, anoint his heels well with the following ointment warm every night. Take ten eggs, boil them very hard, put them into cold water; when cold, separate the yolks from the whites, put all the yolks into a frying-pan, bruise them with a spoon over the fire till they turn black, and yield a fœtid oil, which decant off, and mix it, while warm, with two ounces of honey, and two ounces of white lead in powder, and then keep it for use. It should be heated into a horse's heels, with a fire-shovel. The heels in the day-time should be constantly well rubbed. This ointment exceeds any thing that can be applied for a burn or scald in the human body, if applied soon after the accident, and the part affected be anointed for an hour after, by times, with a feather.

I have often cured a horse of greasy heels by giving him only an ounce and a half of saltpetre pounded fine, or dissolved and mixed with his corn, morning and evening. But this must be continued for a month or more, till his legs are well; but they should be kept washed as above. If you give a horse five or six pounds of saltpetre, in this manner, it will not hurt him; it will free him from all sorts of humors, and put him into excellent spirits.

MALLENDER.

The mallender is a crack in the bend of the knee; it oozes a sharp humor like that at the heels of frush; a horse dare not step out for fear of tearing it wider; it is so painful it takes away his belly; it makes him step short and stumble much.

The same method, medicine, greasing, and poulticing, which you used for swelled or cracked heels, will cure it.

SELLENDER, AND CURE.

The sellender is a crack in the bend of the hough; and must be cured with the same things, and after the same manner.

SORE BACK, AND CURE.

If the saddle bruises his back, and makes it swell, a greasy dish-clout laid on hot, and a cloth or rag over it, bound on a quarter of an hour, (with a circingle,) and repeated once or twice, will sink it flat.

If it is slight, wash it with a little water and salt only; but you must have the saddle altered, that it does not press upon the tender part; for a second bruise will be worse than the first. If his furniture does not fit and sit easy, it will damp him; but if nothing wound or hurt him, he will travel with courage.

ADVICE FOR WATERING.

Make it a standing rule to water on the way before you arrive at the baiting place, be it noon or night; if there is no water by the way, do not, (when once you have entered the stable,) suffer any man to lead him out to a river or horse-pond, to wash his legs or drink, but give him warm water in the house.

If you ride moderately, you ought to let your horse drink at any time on the way; you may trust him, he will not take harm, but always refresh himself: but, if he has been long without water, and is hot, he will then over-drink himself, and it may spoil him; because a load of cold water, greedily swallowed while he is hot, will certainly chill and deaden the tone of the stomach; but two or three go-downs are really necessary to cool his mouth, and may be allowed him at any time on the road.

DIFFICULTY OF STALING.

Sometimes a horse cannot stale, and will be in great pain to ease himself; take half an ounce of aniseed, beaten fine in a mortar, one handful of parsley roots; boil those in a quart of old strong beer, and strain it off, and give it him warm.

HARD RIDING.—SURFEIT.

If you ride hard, and go in hot, your horse will be off his stomach; then is your time to guard against a surfeit, which is always attended with the grease, the farcy, or both; the symptoms are, staring of the coat, and hide-bound.

STARING COAT AND HIDE-BOUND.—THE ANISEED CORDIAL.

Staring of the coat will appear the very next morning. To prevent which, as soon as you dismount, rub him well, cover him, pick his feet, throw a handful or two of beans before him, and litter him deep. Go immediately and boil, for a cordial, half a pound of aniseed in a quart of ale, pour it upon half a pound of honey, into a bowl or basin, brew it about till it is almost as cool as blood, then give it, (with a horn,) seeds and all.

Feed as usual, but keep him warm clothed; give him warm water that night, and next morning; a mash will do well that night, and, lest the cordial should not have force enough to carry off the surfeit, you must give him, (after all, and just before bed-time,) one of those balls directed in a preceding column.

To prevent stiffness, supple and wash his legs with greasy dish-wash, or water and soap, as hot as a man can bear his hand in it, with a dish-clout; and by no means take him out of the stable that night. Grease his hoofs, and stop his feet with the following ball: it is safe and innocent.

A BALL TO STOP THE FEET.

Two or three handfuls of bran put into a little saucepan, with as much grease of any kind as will moisten it. Let it cool, and put a ball of it into each fore-foot.

Cover each ball with a little tow or straw, and put a couple of splints over that, to keep it in all night. This do every night if you please throughout your journey; it is good at any time if he lie still: but these balls are not necessary in the winter, or when the roads are full of water.

A CAUTION AGAINST HOSTLERS.

Ever avoid all stuffings made of cow-dung, clay, and urine, which you will find ready mixed in a tub, in the custody of almost every hostler; such cold stuffings benumb the feet to that degree, that the horse fumbles and steps short for two or three miles, till he gets a little warmth, and feels his feet again.

SHOULDER-SLIP.

If you wrench his shoulder, mix two ounces of the oil of spike with one ounce of the oil of swallows, and half an ounce of turpentine, and with your hands rub a little of it all over the shoulder. It will be best to warm the oils well with a broad-mouth fire-shovel, or plate of iron, hot. Then bleed him, and let him rest two days. This will cure a slight strain. Should he continue lame, you may travel on, but slowly, and he will grow well upon the road; but repeat the oils.

A CAUTION AGAINST BORING AND FIRING.

Some farriers cut a hole through the skin in the middle of the shoulder, and, (with the shank of a tobacco-pipe,) blow it, as a butcher does a shoulder of veal; then they run a flat cold iron, like a horseman's sword-blade, eight or ten inches up, between his shoulder-blade and his ribs, (which they call boring;) after that, they burn him round the shoulder with a hot iron, and cross it like a glass window; next they lay a charge all over the shoulder, (which is a composition of pitch, rosin, and tar,) then put a patten shoe on the contrary foot, and in that condition turn him to grass.

I cannot say I ever knew a horse cured by this method; but I have known many a one lame ever after, for they never get clear of the stiffness which the boring and firing leave in the shoulder; a tender-hearted man would be shocked at the cruelty of this invention; for all that can be obtained is a free discharge of the humors, (occasioned by the wrench,) which may lodge between the shoulder-blade and the ribs; for which you will find roweling alone sufficient.

A CAUTION AGAINST ORIGANUM.

Most farriers will endeavor to persuade you to use oil of origanum in all cases of strains; but I am against that also, by experience; it is too hot and subtle, and by

frequent application will insinuate itself into the bone, and make it brittle.

I saw one instance, when the thickest bone in a horse, (between the shoulder-blade and the elbow,) broke, while a servant led him a foot-pace in hand. The farrier confessed that he had used much of that oil.

STIFLE.—THE CURE.

If you strain your horse in the stifle, a little bone upon the thigh bone, above the inside bend of the hough, (you find such another in a leg of mutton,) the turnip poultice will infallibly cure; but you may rub in the oils first, as ordered in a shoulder-slip. By its situation, you may find a difficulty to keep the poultice on; yet it may be done with a few yards of list. If it is not well, or very much mended, in two or three days, examine the hip; perhaps you may find it there; but this must be cured by oiling, as in a shoulder-slip, for the poultice cannot be fastened on there.

A CLAP IN THE BACK SINEWS.

When lameness arises from a clap in the back sinews, which is relaxation of the sinews from a strain, take a spoonful or two of hog's lard, or rather goose grease; melt it in a saucepan, and rub it into the back sinew, very hot, from the bend of the knee to the fetlock; make, as you are directed in Lameness, a turnip poultice, and tie it on hot, from the fetlock to above the knee, and let it stay on all night; thus, first tie the cloth about the fetlock, then put in the poultice, and raise the cloth and poultice together, till you get it above the bend of the knee, twisting the list or string round his leg as you rise, and fasten it above the knee; take it off in the morning, and put on a fresh one; at night, do the same. Two or three of these poultices will cure a new strain, five or six an old one.

HOW TO KNOW A SHOULDER-SLIP FROM A STRAIN IN THE BACK SINEWS.

This lameness, by ignorant farriers, is frequently taken for a shoulder-slip, and in consequence of this, they proceed to blowing, boring, and roweling, and thus make your horse useless for a long time. Be not imposed upon: be sure it is in his shoulder, before you admit the operation.

If it is in his shoulder, he will drag his toe on the ground as he walks.

If in the back sinew, he will lift it off and step short, though downright lame.

There does not happen above one shoulder-slip to fifty back sinew strains.

A COLD.—A RUNNING OF THE EYES AND NOSTRILS.

You may know if your horse has caught cold, by a running at his eyes, and a little gleeting at his nostrils; though it is impossible to know exactly how he came by it, (for standing near a hole, a window, or door, a damp new-built stable, and many other ways, may do it,) yet I would warn you against one practice in particular, too much in use, which seldom fails to give a horse cold.

A CAUTION AGAINST CATCHING COLD.

That is, taking him out of a warm stable, and riding into a river or horse-pond, at an unseasonable hour, either too late or too early, (see Watering;) a horse should never be taken out of a warm stable, on a journey, till you mount him to travel.

HALTER-CAST.

Note. The same poultice will also cure the fetlock of the horse that is cast in his halter, by frequently repeating.

A CAUTION TO PREVENT FOUNDERING ON THE ROAD.

It is the opinion of most grooms, that a horse heats his legs and feet upon a hard road, especially if he is a heavy horse, or carries a great weight, and that he should be refreshed and cooled by washing. To which I agree; but then it must be with warm water, for that cools best. This will not only open the pores and make his legs perspire, but will clear the fetlock joints best of any gravel that may get in between the wrinkles, and thus fret and inflame his legs; cold water naturally contracts the skin, and binds any gravel, there may chance to be, the firmer. Stop his feet also with the ball before mentioned, but make it pretty warm.

Note. A horse, in this case, ought to have a large stall, that he may stretch his legs. Young horses require larger stalls than old ones; for an accustomed old horse will ease himself in a stall of five feet wide, as well as in one of two yards.

A COUGH.

If, after a day or two, you perceive a running at his eyes, and a little gleeting at his nostrils, you may expect to hear him cough. In that case, take a pint of blood from his neck, in the morning, (a horse will travel, notwithstanding, if you do not exceed a pint,) and at noon give an additional feed, to make amends for the loss of blood.

At night, give him a mash, over and above his usual allowance. The next night give him the aniseed cordial as before.

(To be continued.)

Specification of the Patent granted to JOHN BAPTISTE CONSTANTINE TORASSA, *and others, for certain Improvements in Making or Producing the Pigment commonly known by the name of White Lead or Carbonate of Lead.* Sealed December 11, 1833.*

To all to whom these presents shall come, &c. &c. Now know ye, that in compliance with the said proviso, we, the said John Baptiste Constantine Torassa, Paul Isaac Muston, and Henry Walker Wood, do hereby declare the nature of the said invention to consist in making or producing the pigment commonly known by the name of white lead without the use or employment of vinegar, or acetic, or acetous acid, in any other form or under any other name, and without the aid of artificial heat, except for the purpose of drying the white lead, as hereinafter mentioned, by reducing the ordinary lead of commerce, by friction in water, to a very fine powder, and then exposing the said powder to atmospheric air, so that it may acquire both oxygen and carbonic acid, and thus be converted into the pigment aforesaid.

We cut common sheet lead into very small pieces or grains, or, what is preferable, we form lead into what may be termed shot, in the same manner as patent shot is made, except that no other ingredient is used to cause the lead to cool in a perfect round form. The exact shape of the pieces of lead is immaterial, but the shape of shot is the most convenient. These shots or pieces of lead should be about the size of *duck shot*, and having procured any given quantity, we place them in an open shallow wooden vessel lined with sheet lead, which we call a friction vessel, covering the bottom of the vessel with the shot or pieces of lead to the depth of about one inch, and then add water sufficient to cover them, but not more. We then tip the vessel containing the shot or pieces of lead, from side to side, in such manner as to cause the shots or pieces of lead to roll backwards and forwards on the bottom of the vessel, and thus produce great friction of the pieces of lead, one against the other, and this friction will produce an extremely fine powder of lead mixed with the water, from which it will separate easily, if left to subside. We then remove the moist powder, which is at an early period of the process of a dark color, pass it through a fine sieve, and expose it for about eight or ten days to atmospheric air, whilst the power is still in a moist state, and about the consistence of thick cream, in another shallow open vessel, which we call the carbonating vessel, where we agitate or stir it constantly, in order to expose it as much as possible to the action of the atmospheric air, until it assumes a beautiful white color, and is thus converted into the pigment commonly known by the name of white lead or carbonate of lead. The carbonating vessel may be made of any convenient material, but we prefer wood as nearly colorless as possible. When the white lead is thus produced, if it should still contain any moisture, it should be well dried before it is put into casks for sale.

Now, whereas we do not claim as the said invention the form of the friction or carbonating vessels here given, or the particular manner hereinbefore described of agitating the lead, though the foregoing is the process we usually employ as being the best adapted of any we now know of for the purpose, when engine-power is not used; but we claim as the said invention the following improvements, (that is to say,) making white lead without the use of vinegar or acetous acid, in any other form or under any other name, and without the aid of artificial heat, except for the purposes of drying the white lead, as hereinbefore mentioned, and converting the ordinary lead of commerce into the pigment commonly known by the name of white lead or carbonate of lead, by reducing it to a fine powder by friction, as aforesaid, and then converting that powder into the said pigment by exposing it to the action of the atmosphere, as hereinbefore described. And such invention being, to the best of our knowledge and belief, entirely new and never before used, we do hereby declare this to be our specification of the same, and that we do verily believe this our said specification doth comply in all respects fully and without reserve or disguise with the proviso in the said hereinbefore in part recited letters patent contained; wherefore we do hereby claim to maintain exclusive right and privilege to the said invention. In witness whereof, &c.

Enrolled June 10, 1834.

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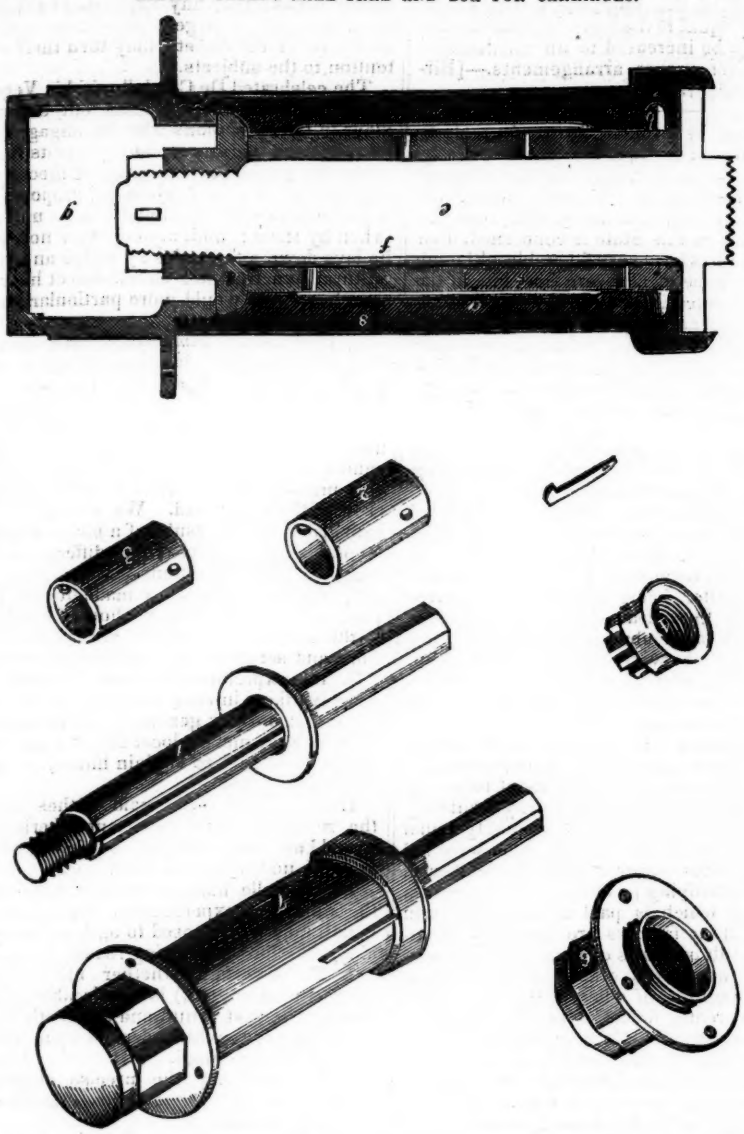
* The engraving and description of it are omitted. We give merely the process of manufacture.—[Ed. M. M.]

BIRCH'S PATENT AXLE-TREE AND BOX FOR CARRIAGES.



[From the London Mechanics' Magazine.]

Many have been the attempts made to supply that important desideratum in coach-making, namely, a permanently oiled axle, or, to speak more properly, an axle that once supplied with a sufficiency of oil will remain so—if not forever, at least for such a length of time as will obviate the numerous inconveniences with which the necessity of frequent oiling is attended; when travelling, more especially. Mr. Birch, the eminent coachmaker, has recently invented and patented an axletree and box, which seems to us to go much farther towards supplying this desideratum than any other invention of the kind with which we are acquainted.

Fig. 1 of the prefixed engravings, represents the arm and shoulder of Mr. Birch's axletree. The arm, which is a perfect cylinder, has a groove cut in it to allow the passage of oil; the end is screwed to receive the nut, and a hole is cut into it for the linch-pin.

Figs. 2 and 3 are two loose cylindrical barrels, made to turn easily on the axle-arm; each is perforated with holes, to allow the free passage of oil, and to receive any grit that may have got on the surface.

Fig. 4 is the nut, the back of which, or the end that meets the box, is made convex, so as to fit into the concave end of the box and against the cylindrical barrels. The other end of the nut is hexagonal, and cut through the six sides, in order that the linch-pin, fig. 5, may be put in at any of these sides, and the play of the wheel adjusted to a nicety.

Fig. 6 is the cap or reservoir which is screwed into the linch end of the box.

Now let us put these parts together. The cylindrical barrels, (figs. 2 and 3,) are put on the arm, (fig. 1,) and, after these are inserted in the box, (which latter, as we shall see by the section, has a chamber in the rear for the oil,) the nut, (fig. 4,) is screwed on, and the linch-pin put in. Having screwed on the cap, the box will be complete, as inserted in the nave, and as shown by fig. 7.

Fig. 8 is a section on a larger scale, to show the connection of the different parts; *a a* is the box which shows the channels for the oil; *b b* the chamber to receive the oil; *c c* the cylindrical barrels; *d d* the nut; *e* the axle arm, showing the channel *f*; and *g* the cap.

Mr. Birch had fitted up a gig with one of these axletrees, one wheel of which being once oiled, was never again disturbed until worn out. The other wheel had the cap taken from it, and ran six hundred miles; the arm, &c. was then well cleaned and polished, and put together without any oil, when, in this state, the wheel ran sixty miles without sticking fast.

Sir John Conroy, who has the charge of the stables of her Royal Highness the Duchess of Kent, was the first person to notice the improved axletree, and he has introduced it in some of her Royal Highness's travelling carriages, where the improvement has been found to answer remarkably well.

One of these axletrees was put to the cabriolet of John Ramsbottom, Esq., M. P., which went out on the 9th October, 1831. One month afterwards it was examined and refitted up, and was not again touched until the 23d of May, 1833, when it was found quite full of oil. It was again refitted with the same oil, and the cabriolet continued in use until the 12th of May, 1834; when the axletree and wheel were examined, in the presence of Dr. Birkbeck and Mr. Toplis. The latter gentleman has made the following report of this examination:

"Museum of National Manufactures, &c.
"Leicester square, May 12, 1834.

"I was this day present on the premises of Mr. Birch, coachmaker, Great Queen street, to see the state of a pair of his improved axletree boxes, after the same had been in use above two years and a half since the last replenishment with oil. They were in a cabriolet belonging to John Ramsbottom, Esq., M. P.

"There appeared to have been no partial wear; every part was free and uninjured. All the rubbing surfaces were well covered with oil, and appeared to have been at all times sufficiently lubricated. The oil had not become glutinous, nor could much have escaped, as there remained still a sufficient quantity to keep the working parts in good order for a considerable time to come. The oil was discolored by the iron, but had no verdigris in it. The wheel was replaced without any further supply of oil.

(Signed) "CHARLES TOPLIS,
"Director of the Museum."

ON DRY ROT.—Dr. Birkbeck's lecture before the Society of Arts, on the preservation of timber and other vegetable substances, was an able exposition of Mr. Kyan's discovery for preventing dry rot, mildew, and decay in timber, canvass, cordage, &c. We have so frequently directed public attention to this principle, that it would now be quite a work of supererogation to say a word on the subject more, than to repeat that a saturated solution of corrosive sublimate, into which the material is placed for a short time,

completely preserves it from future decay. Dr. Birkbeck, however, in his admirable address, threw together such a number of instructive observations on vegetable physiology, in reference to the original or natural cause of decay in timber, that it would be improper to pass them in silence. After a cursory review of the fallacious principles of Reid, Jackson, Lewis, Langton, and others, the lecturer noticed the discovery of Berzelius and Fourcroy, (an improvement on that of Sir H. Davy,) relative to the preserving properties of *tannin*, illustrating it by an experiment with a portion of animal gelatine and oak tannin, which produced a precipitate possessing all the principles sought after. The passage of fluid through a woody structure had been clearly demonstrated by De Candolle, and other vegetable anatomists; nay, water found its way through the pores with even greater facility than air; besides, there was the *albumen*, a constituent of vegetable as well as animal substances, distinguished by its property of coagulating when heated, and the *alburnum*, a soft white substance between the inner bark and the wood of trees: these might be considered the natural sources of decomposition. The albumen was more readily decomposed than other parts of the wood; and it had a germinating principle in itself—a soil fitted for the production of the *monas*, and others of the *infusoria* order, observed by Ehrenberg, 500,000,000 of which might be contained in a square inch: these insects were minute enough to find their way throughout the texture of the wood. Again, Count Rumford found, do all he could—and he tried many experiments to expel both air and water—that only three-fifths parts of wood were solid matter, the others being water. How apparent and necessary was it then to effect a vacuum as regarded air and water, and to render the albumen, &c., not decomposable! This was the chief end of Mr. Kyan's valuable discovery. Many well-authenticated specimens of prepared and unprepared materials, deposited for years in the fungus-pit at Woolwich, which possesses such a villanous compound of air that it was remarked neither animal nor vegetable life continued in it, were produced; the effects of mildew and rot were as obvious in the latter as their total absence was wonderful in the former.—[London Literary Gazette.]

Power of Machinery in Great Britain.—Mr. W. Pares, at a public meeting, lately held at Birmingham, stated in proof of the increase of the powers of production. by the improvement of machinery, that in 1792, the machinery in existence was equal to the labor of ten millions of laborers; in 1827, to 200 millions; and in 1833, to 400 millions. In the cotton trade, spindles that used to revolve 50 times in a minute, now revolve in some cases 800 times in a minute. In one mill at Manchester, there are 136,000 spindles at work, spinning one million two hundred thousand miles of cotton thread per week. Mr. Owen, of New-Lanark, with 2,500 people, daily produces as much cotton yarn as will go round the earth twice and a half. The total machinery in the kingdom is calculated now to be equal to the work of 400 millions, and might be increased to an incalculable extent under proper arrangements.—[Birmingham Journal.]

Culture of Silk in Ohio.—In reply to the inquiry made in a late number of the Genesee Farmer, respecting the success which farmers have met with during the past season in the culture of silk, it may be said, so far as this State is concerned, that the season has been very favorable, although the occurrence of a severe frost late in the spring rendered it for a while doubtful whether any worms could be saved. Our fruit was entirely destroyed except in some very favorable situations, and many fruit trees were unable to withstand its withering effects. It is believed, too, that many silk worms were destroyed for want of their proper food; but generally the precaution is taken to prevent the eggs from hatching until the danger from frost is passed.

A few of my worms, which were hatched before this frost, were only saved by feeding them on the leaves of the common dandelion, (the Leontodon taraxacum of Botanists.) After being sustained for three weeks on these leaves, they evinced some reluctance to the change to white mulberry leaves, which were then given to them. They had a whitish and unnatural appearance, had grown but little, and it is believed that they would not have come to maturity, and produced silk, without their natural food. Their molting was considerably delayed, so that they occupied about twice the usual time in coming to maturity; but they ultimately produced silk of a quality equal to that made by the worms which were fed entirely on the leaves of the white mulberry.

It is gratifying to observe the increased attention which is paid to this subject in Ohio. Many farmers are providing themselves with orchards of mulberry, and preparing themselves otherwise to produce large quantities of silk whenever a market shall be created for it. It is to be regretted, however, that the Chinese mulberry is so scarce and dear, that but few are able to obtain it; although all appear to be aware of its superiority over the Italian. Would it not be a profitable business for some of your gardeners and nurserymen, to send a few plants and cuttings to this state during the present season?

The usual method of tying together small bundles of bushes for the worms to mount and spin their cocoons upon, was found not to be so convenient and useful as the following: Take a strip of plank, say eighteen inches long, and three inches wide, and set in it two rows of small light sticks leaning outwards, like the two sides of the letter V. Fill this rack loosely with dried oak leaves, and place it upon the table or shelf containing the worms, and they will pass between the sticks, and form other cocoons among the leaves.

As these leaves afford more places suitable for the formation of cocoons, they are not so liable to be double, and as there is a larger surface of the apparatus in contact with the table, the worms can more easily find it, and therefore do not waste their strength in travelling around the table in search of it. S. L. Champaigne co., Ohio, December, 1834.—[Genesee Farmer.]

Experiments Proposed.—The following hints upon experiments in agriculture have been just received by the committee of the Saffron Walden Agricultural Society, and printed, in the hope that as it is quite unnecessary, in order to arrive at a practically useful result, that any experiment should be tried upon a large scale, some of the members of the society may turn their attention to the subjects.

The celebrated De Candolle, in his Vegetable Physiology, has pointed out several ways in which persons who are engaged in various scientific or economic pursuits may assist in perfecting the general theory of vegetation. To each class he proposes a separate series of experiments to be undertaken by them; and, among other notices, he lays down a few rules by which an agricultural experimenter should direct his researches. We would more particularly refer to the following:

1. That a set of *comparative* experiments should be instituted, in all cases where any positive result may be decided. For instance, if we wish to know the effect which any particular treatment of the soil will produce upon a certain crop, then we should at the same time ascertain what is the effect of the soil, under ordinary circumstances, upon a crop of the same kind. We should not be satisfied with the results of a single experiment, but should repeat it on different soils, and in different situations.

2. No remarks that are made during the progress of an experiment should be trusted to the memory, but should always be carefully and scrupulously recorded in writing.

3. The experimenter should be careful to state his facts in such scientific or technical terms as may generally be understood, or, if he uses merely local and popular language, he should so explain himself as to be clearly intelligible.

Had attention been paid in these rules, the results of many important experiments would have been available to science, which are now no better than lost labor.

De Candolle has particularly alluded to the following experiments, among others, which may be proposed to agriculturists as likely to afford interesting results:

1. To ascertain whether blue vitriol, (sulphate of copper,) is serviceable in preventing the rust, smut, and some other diseases in corn, which depend upon the attacks of minute fungi.

2. To ascertain the precise effects of gypsum or plaster of Paris, (sulphate of lime,) in agriculture.

(*a*) Whether it be equally efficacious, calcined or unburnt, in promoting the growth of green forage, as tares, peas, &c. [Legumenosæ.]

(*b*) Whether it be useful as a manure for any other tribes of plants.

(*c*) Whether its use hardens the seeds of the Legumenosæ, so as render them difficult to be cooked.

3. To determine, by exact and varied experiments, whether different kinds of corn intermixed in the same field will yield a greater or less produce than when grown in separate fields.

4. To prove by experiments on physiological and chemical principles, (as laid down by De Candolle,) what rotation of crops may be most advantageously adopted on different soils, and what soils, by a rotation of crops, will yield all the advantages of which the alternate system is capable.—[British Farmer's Magazine.]

Ashes as a Manure.—I have been in the practice of applying ashes made on my own premises, as a manure, in the following manner: I take wood ashes, after they are leeched and thrown together, with those of stone coal from one or two grates, and spread them early in the spring on clover land, and sometimes on corn after planting,

at the rate of (probably) forty bushels on an acre, with great effect on either of those crops, especially on a heavy clay soil, which is here generally allied to lime-stone; the effect on a warm slaty soil is not so great. I think I can trace their influence from five to seven years. OHIO FARMER.—[Genesee Farmer.]

ON DRAUGHT, No. 1.—It may be recollected that, while treating upon the qualities and history of the Horse, I alluded not unfrequently to the subject of *draught*, as being an interesting topic of investigation. More recently I have had occasion to examine the subject with some care, with especial reference to canals and canal transportation. To a superficial observer, the subject promises nothing of interest; and even to more reflecting minds it is often passed by, as a matter familiar to all, and requiring no special consideration. The application of animal power in the conveyance of property, is indeed an every day occurrence, and we are all constantly in the habit of applying principles and using expedients, for which we can give no more satisfactory reason, than that they answer our present purpose. The slightest reflection, however, will readily convince us, that the use and application of *power*, in every possible shape, must involve many important principles.

I do not propose, at present, to discuss this topic in all its varied applications, nor to investigate or explain the numerous philosophical principles with which it is connected; but merely to offer some plain reflections upon the result of my inquiries; and if they shall afford any gratification to the readers of the Farmer, they are heartily at their service.

Draught, in the sense I shall here use it, is the moving of any substance, by *dragging*. The subject is usually divided into three parts: first, the power to be applied; second, the substance or vehicle to be moved; and third, the channel of conveyance.

The first of these divisions embraces a wide field of investigation, inasmuch as the application is co-extensive with the works of nature.

Power, in the abstract, is a mysterious and inexplicable principle, and far beyond the reach of our comprehension. Its application, however, in all the varied operations of nature and art, and the laws which govern this application, have been subjects of philosophical investigation from time immemorial. This must ever be the extent of scientific research; for the moment we pass these boundaries, we are lost in the contemplation of Omnipotence.

Aside from Deity, the great author of all power and motion, we know nothing of their origin or cause; and it is curious to notice, how strangely philosophers and sages have argued and reasoned on this subject, until within a few years; simply by mistaking the effect for the cause. If we reflect a moment upon the cause of our own locomotion, we shall at once perceive, that what is usually called *animal power*, and concerning which so much has been written, as a *first cause* of motion, is, after all, something we cannot fathom. When a person, from a state of perfect inaction, sets his body in motion, he exerts great *animal power*; but this is only its effect, and not the cause. Suppose a man throws a cannon ball to any given distance; he exerts great *power*, and the man is considered as the moving principle, the *cause* of the motion of the ball. But from whence does *he* derive this power? There is nothing in bone and muscle to propel a ball any more than in a stick or stone; all are wholly inert, until some moving principle is applied. A mass of flesh exerts no power; nor does spirit apply at all to material matter. Whence, then, comes this moving principle? It is not inherent in flesh and blood; nor is it the consequence of spiritual agency: for beasts, who have no spirit, exert the same power. What, then, is *animal power*? Here we are lost in the infinitude of Omnipotence, and are left to admire and adore that wisdom and goodness which has invested us with such mysterious and wonderful qualities. All we are permitted to do, is to apply this principle in all the various circumstances of our existence, and to investigate its effects, when thus applied.

My present object, however, is only with the application of this principle to *draught*; and as there are only two kinds of power, animal and mechanical, which are as yet applied to the common purposes of draught, I shall consider only these two in their various applications.

By *animal power*, as I have before intimated, is simply meant the moving of any given substance by the exertion of animal strength, such as the drawing of a cart by a horse, or an ox. *Mechanical power* is the same principle applied by means of machinery, and usually is the effect of steam.

As much competition has arisen of late between these two agents, by the introduction of railroads, it might be an interesting inquiry to compare their respective merits, with all their attendant advantages and disadvantages; but I have neither time nor inclination for so great a task. Still, it may be well to state a few circumstances connected with their respective operations. And before doing this, I will explain what is meant by "force of traction," a term which is constantly used in speaking on this subject; and for this purpose, I will avail myself of an extract from a foreign work.

"A force is most conveniently measured by the weight which it would be capable of raising; but it is not therefore necessarily applied vertically, in which direction weight or gravity acts.

"If a weight of 100 lbs. be suspended to a rope, it is clearly exerting upon this rope a force of 100 lbs.; but if the rope be passed over a pully void of friction, and continued horizontally, or in any other direction, and then attached to some fixed point, the weight still acts upon all parts of this rope, and consequently upon the point to which it is fixed, with a force equal to 100 lbs.; and so inversely, if a horse be pulling at a rope with a force which, if the rope were passed over a pulley, would raise 100 lbs., the force of traction of the horse is in this case 100 lbs." Spring steel-yards being now commonly in use, we may be permitted to refer to them as affording another exemplification of our meaning. In pulling at a steel-yard of this description, whether the force be exerted horizontally or vertically, the index will, of course, show the same amount—and, consequently, if the strength of the horse be measured by attaching the traces to one of these steel-yards, the number of pounds indicated on the dial will be the exact measure of the strain the horse exerts, and the amount of strain is called the 'force of traction.'"

In other words: a man may be able to draw or push upon a railway a carriage weighing 2,000 lbs., while at the same time he cannot lift more than 100 lbs. It will readily be seen, that the latter is the measure of his strength, or force of traction, while the former is simply the effect of it.

The force of traction of a horse has been variously estimated by different authors from 80 lbs. to 200 lbs.; but the ordinary average at a slow pace is now rated at 125 lbs., over and above the power necessary to carry his own body.

The comparative merits of horse and steam power, when applied to the conveyance of property, must depend principally upon their practicability and expense. These two points are most conveniently tested upon railways; where both powers are constantly in use, and of course their practicability proved.

The annual expense of a horse depends upon the interest of purchase money, the decrease of value, the hazard of loss, the value of food, harness, shoeing, and farriery, rent of stabling, and expense of attendance. These are estimated in England, by Mr. Tredgold, in his work on Railroads, at about £60 sterling, or $266.40, allowing the horse a power of 125 lbs., travelling at the rate of three miles per hour, and the day's work at eighteen miles.

The annual expense of a steam carriage consists of the interest of first cost, the decrease of value, the hazard of accidents, the value of fuel and water, renewals and repairs, and expense of attendance. These are estimated at £51, or $226.44. This power is equal to a force of traction of 155 lbs., for the same number of miles per day as the horse, and after deducting the power necessary to move the engine. Thus it appears that the expense of the horse is to that of the steam-engine about as 147 to 100; which shows a decided advantage in favor of steam power when used upon railways. If, then, the power of the horse and steam engine could always be applied to draught upon rails, we should be at no loss to determine the preferable agent; but unfortunately we are compelled to use roads as we find them; and under such circumstances, horse power presents a different aspect.

In the ordinary use of horse power upon common roads, the force of traction of the horse and expense of keeping will remain much the same as above stated, while those of the steam carriage, for the same purpose, must undergo considerable change. The carriage must be heavier and stronger, and of course the cost more; the expense of fuel more, and wear and tear greater, because more power will be required to overcome the varied resistance. Under these circumstances, the proportionate expense of horse and steam power is estimated to be about 115 to 100.

If this estimate is correct, there can be no great advantage arising from the use of steam power, even when the roads are good, and approximate towards the smoothness of rails, unless where velocity is required at the expense of power. Ordinarily, it will be found that the horse will adapt himself so perfectly to his work, increasing or diminishing his power, as occasion or resistance may require, that the *average effect* of his power will be increased, rather than diminished, thereby enhancing his average force of traction. On common roads great obstructions are often presented, and constant changes of ascent and descent occur; and it is on such occasions that horse power is decidedly advantageous.

On the contrary, a steam engine of a given power cannot increase or diminish its force to meet every little variation in the road, and it must consequently come to a dead stand when any resistance occurs beyond its force of traction. "For instance, suppose the carriage to be advancing steadily under the effect of a force of traction of 500 lbs., and that a stone or rut suddenly causes a resistance, which it would require

600 or 800 lbs. to overcome; if the impetus or momentum of the mass be not sufficient to carry it over this obstruction, the machine must stop until some increased power be given to it."

These objections to mechanical power are, however, not insurmountable, but they present such serious difficulties in practice, that some farther discoveries must be made, and some greater inducements offered, before it can come into general use.

Under such circumstances, connected with the numerous other contingencies, which seriously affect the practical application of this power, we shall readily be induced to abide by our old friend, the horse, and make his burthen easy, and his labor as effective as possible. QUERCUS.—[Gen. Farmer.]

SHEEP AND CATTLE.—In publishing the following, we cannot refrain from repeating a remark made to us a few days since by an intelligent farmer of this county, who has a fine herd of Devons, and to which he gives a decided preference over all other breeds. In conversing on the merits of the different breeds of cattle, "I consiuer it," said he, "of but little consequence what breed is raised by our farmers, so long as they are managed in the wretched manner of most of the cattle in this country—they are neither fed nor housed as they should be; and my brother farmers not only lose the profits which they might and ought to make on their stock, but they absolutely lose money by raising cattle." There is too much truth in this remark, and we agree with the gentleman in the opinion that the introduction of improved breeds of cattle among those who but half feed their stock, will be of but little use; and we would add to the request contained in the annexed, that we should be pleased to have the readers of the Farmer furnish us with their opinions as to the best mode of raising cattle, the cost and manner of feeding them in summer and winter, and the profits to be derived from this branch of husbandry.

"As it is now a season of comparative leisure, I wish your subscribers would give their views on the two following subjects, together with the results of their own experience, viz.:

"1. Which is the most profitable breed of sheep to raise in this state? and

"2. What breed of cattle will be the most profitable to farmers generally?

"I think the winter cannot be better employed than in giving these two subjects a thorough investigation. In this way a fund of valuable information may be obtained, which will be of great use to farmers generally. I hope no one will refuse to contribute his mite, for surely no farmer is so ignorant as not to be able to tell what he knows of his own stock?"—[Gen. Farmer.]

STRAWBERRIES—EXPENSIVE BREAKFAST.—Under date of May 29, 1783, we find this paragraph in one of Miss H. More's letters.

"Did I tell you that the Bishop of Chester's Sermons were out of print in eight days. I hope the age is not so bad as we took it to be; and yet it cannot be very good, when the strawberries at Lady Stormont's breakfast, last Saturday morning, cost one hundred and fifty pounds."

This sum is equal to about $760, which will support a whole family a year, or buy land enough for a farm.

OF SOILING NEAT CATTLE.—The advocates of this system support it by the following arguments, which certainly merit the closest attention of the grazier. That:

1. By introducing the practice of soiling, *a very considerable saving of land* will be effected; one acre of cut grass soiled being equal to three acres used as pasture; and one acre of cut clover being equal to two acres pastured, even of the same field, and sown with the same grass, the clover not being trampled upon, and growing so much faster than if it were often corroded with the teeth of an animal, or the young leaves nibbled off before they are sufficiently formed. It has even been affirmed that *sixteen* acres of cut clover and tares will feed as many horses and cattle as *thirty-six* acres of the same kind of grass would do, if used in pasturage;* and that as all plants draw much of their food from the atmosphere by means of their foliage, they are deprived of their chief support, and never attain perfection, if the herbage be trodden before it has arrived at maturity.

II. There is also a very *considerable saving in the quantity of food consumed*, as well as a greater variety of plants eaten, and consequently prevented from running to waste: for when animals are suffered to go upon the field, many plants are necessarily trodden under foot and bruised, or partly buried in the earth, in which state they are greatly disrelished by cattle, and are suffered to run to waste: a circumstance which never could occur, if the practice of cutting were adopted.

And if the consumption of plants be the object principally regarded, it is obvious that the benefits thence to be derived will be very great; for experience has clearly proved, that cattle will eat with avidity many plants, *if cut and given to them in the house*, which they never would touch while growing in the field: such are the dock, cow-parsley, thistles, nettles, and numerous other plants; yet, on the other hand, it is known that they will eat food, *when thrown to them on the ground*, which they will reject when given in the stall. We confess, we know not to what circumstance this can be attributed; but the fact is, that the animals will eat them without exhibiting any marks of dislike or reluctance, even when they are not pressed by hunger; and they often greedily devour these plants as soon as they are brought in from the field, and before they can have possibly had time to become hungry. It is also well known that many of our best and finest grasses, which, when young, form a most palatable food to cattle, are, if once suffered to get into ear, so much disliked by them, that the beasts will never taste them unless compelled by extreme hunger. And as, in most pastures, many of these grasses ripen through delay, their produce is, of course, inevitably lost to the grazier; whereas, if cut down by the scythe in proper time, not one plant will be suffered to get into that nauseating state, and consequently no waste can be sustained from this cause.

In addition to the preceding observations, it may be remarked, that those few plants which are totally disregarded by one class of animals, so as to be rejected by them, even in the house, will not, on that account, become less acceptable to others, but greatly the reverse. Thus grass, or other food, that has been *blown* or *breathed upon* by any animal for a considerable time, becomes unpleasant to other beasts of the same species, but not so to stock of another class or variety; for them, indeed, it appears to acquire a higher relish. Even greater defilement by one animal seems to render food more acceptable to others; for straw, which in a clean state has been refused by cattle, acquires such a relish, if employed as a litter for horses, that they seek for it with avidity. Hence it happens, that the sweepings of the stalls from one animal supply a pleasing repast for those of another kind, which can be easily removed from one to the other, if the plants are consumed in the house, but which must otherwise have been lost in the field. And this peculiarity may, as we shall shortly have occasion to show, be employed to answer another useful purpose.

III. With regard to the influence produced by soiling on the *health and comfort of cattle*, the balance is conceived to be clearly in favor of the cutting system, when compared with that of pasturing. Thus, they are not liable to be blown or hoven, or to be staked or otherwise injured by breaking fences: and it is well known that when animals are exposed to the sun, in the open air, they are not only greatly incommoded on many occasions by the heat, but are also annoyed by swarms of flies, gnats, and hornets, which, as well as the terrible *gad-fly*,* drive them into a state of perturbation little short of madness, that obviously tends to impede their thriving. At other times they are hurt by chilling blasts, or drenched by cheerless rains, which retard their feeding. Under proper management, in well constructed stalls, all these evils would be alike removed, and they would be kept in a uniform state of coolness, tranquillity, and ease, so as to make the same quantity of food go farther in nourishing them than it otherwise would have done. Lastly, by judiciously mingling green and succulent vegetables with dry and nourishing food, as circumstances may require it, and by varying the different articles so as to provoke an appetite, not only the health, but also the thriving of the creatures, will be greatly augmented beyond what they could have been by any other mode of treatment.

IV. The proportioned increase of manure obtained by soiling and stall-feed-

* Sinclair, vol. ii. p. 19. An experiment is recorded in "the American Farmer," (vol. ii.,) from which it appears, that seventeen acres of land, under the soiling system, supported as much stock as had previously required fifty; and Sir John Sinclair mentions a singular coincidence in another trial, in which thirty-three head of cattle were soiled, from the 20th of May to the 1st of October, 1815, on seventeen acres and a half, of which fifty were necessary in pasture.—[Code of Agriculture, p. 487.]

* The *Œstrus bovis* of Linnæus, sometimes called the *breeze*.

ing, further evinces their superiority over pasturing. *Manure* is the life and soul of husbandry; and when tillage is an object of attention, there can be no comparison between the two modes of consumption, especially with regard to the manure obtained by soiling live-stock, during summer, with green food; for in consequence of the increased discharge of urine during that season, the litter, of whatever substance it may consist, is speedily converted into dung. And there can be no doubt, but that the quantity of manure made during the summer, may, by constructing proper reservoirs for the reception of the stale, and by throwing this at leisure times over the litter, be made to equal, if not exceed, the *produce* of the dung accumulated during the winter. The *quality* must depend on the nature of the food.

V. With regard to the *quantity of herbage* afforded from the same field, under the *cutting* or *grazing* systems, the balance will be found equally in favor of the former. All animals, it is well known, delight more to feed on the young and fresh shoots of grass, than on such as are older. Hence it invariably happens, that those patches in pastures which happen to have been once eaten bare in the beginning of the season are kept very short throughout the remainder of that season, by the animals preferring them to other parts of the field where the grass is longer; so that the latter are often suffered to continue in a great measure untouched. Another circumstance, however, which is not very generally known, is, that grass, even the leafy parts of it, when it has attained a certain length, becomes stationary; and notwithstanding it will retain its verdure in that state for some months, yet, were it cut, it would have continued in a constant state of progress, proportioned to the frequency of its being cropped.* Experiments have, indeed, been brought forward, to prove, that with clover, rye-grass, lucerne, and tares, *double the number* of cattle may be supported in much better condition when cut than when pastured; and from the results of other trials it appears to be equal to five, or even a larger number. Many exaggerated statements have, indeed, been produced in support of the system of soiling; but without attaching implicit faith to these, we are convinced from actual observation, that by judicious management in this respect, the profits of the grazier may be largely augmented.

The practice of soiling and stall-feeding cattle, has been adopted to a considerable extent on the continent, by Baron Von Bulow and others; the result of whose experience is inserted in the first volume of the "Communications to the Board of Agriculture," by Dr. Thaer, physician to the electoral court of Hanover, and which, he observed, has proved the following facts to be incontrovertible.

1. "A spot of ground which, when pastured upon, will yield sufficient food for only *one* head, will abundantly maintain *four* head of cattle in the stable, if the vegetables be mowed in proper time, and given to the cattle in a proper order.

2. "The stall-feeding yields at least double the quantity of manure from the same number of cattle; for the best and most efficacious summer manure is produced in the stable and carried to the fields at the most proper period of its fermentation; whereas, when spread on the meadow, and exhausted by the air and sun, its power is entirely wasted.

3. "The cows used to stall-feeding will yield a much greater quantity of milk, and increase faster in weight, when fattening, than when they go into the field.

4. "They are less subject to accidents, do not suffer by the heat, by flies and insects, are not affected by the baneful fogs that are frequent in Germany, and bring on inflammations; on the contrary, if every thing be properly managed, they remain in a constant state of health and vigor."

The facts and inferences above stated fully prove the advantages of soiling. It ought not, however, to be concealed, that there are some inconveniences attendant on the soiling and stall-feeding of cattle; such as, for instance, the additional labor and expense incurred by cutting and carting the green vegetables home, to sheds, both in winter and summer. But these are compensated, in a tenfold degree, by the increased value of the food, the thriving of the cattle, the making of the dung under cover, and having reservoirs in which to catch the urine. With this management one good acre of turnips will produce an excellent dressing for at least an acre of land, and with a very small portion of hay, will completely winter-fat an ox of fifty score. If fed on the land, two acres of tolerable grass may fat an ox, but not so well, nor will he be forwarded so fast in flesh, if exposed to the weather in cold and wet seasons, as if kept dry and moderately warm; and the dressing will be very partial and precarious. Further, where large quantities of food are accumulated together for a considerable time, it is objected that they are liable to fermentation, and, of course, to waste; such are cabbages, turnips, and other roots; so, where tares are left on the ground, they are liable to become podded, in consequence of the butt ends of the vegetables being of a coarse nature, and in a decaying condition, in which state they are uniformly refused by beasts. But these and many other disadvantages that might be mentioned, may be obviated by paying due regard to the storing of the various vegetable crops, and to their economical consumption. It has likewise been objected, even by persons who in general approve of soiling and stall-feeding, that cattle will, by confinement during the summer months, be too much heated, and that their health will be affected; but stalls may be so constructed as to admit a regular circulation of air, and yet shelter them from the attacks of flies. The cattle may also be allowed the freedom of an open yard. Indeed, in that season, *fold-yards*, with open sheds, are much to be preferred to stalls. This is the practice in Yorkshire, where the management of stock is well understood; and there are not wanting many experienced graziers who prefer air during the utmost inclemency of winter. Air is, indeed, indispensably necessary to the preservation of the health and speedy fattening of animals; for, if kept too hot, they will perspire profusely, and their hides will itch; this vexes them exceedingly, and necessarily retards their quick feeding, yet some very eminent graziers have pursued this plan with considerable success.

When grass, (whether natural or artificial,) is to be given, it ought to be cut in the morning, for the evening food, and in the afternoon for the morning; the afternoon crop should be carried to the barn, or some other convenient place, and spread out in order to exhale its superfluous moisture; and, in rainy weather, both crops must be taken off the ground. Attention, however, ought to be paid to the due proportion to be cut; and until that fact be ascertained, it is a good plan to measure each mess, and to chalk down the quantity *in weight*, which the basket, cart-body, or other vehicle employed for carrying food, contains of the various articles used for that purpose. The practice will, at least, have a tendency to teach farm servants to observe *method*, the value of which is of considerable importance in all business, and in none of more than in the various branches that are connected with husbandry. In the early part of the season, when tares and clover are either inadequate to the support of the stock, or that it may be thought expedient to change them gradually from dry to green food, a portion of these grasses may be mixed with the hay or straw on which the cattle are fed; and if the mixture be made up over night, the dry provender will be found to have acquired a sweet vegetable taste, and to be rendered so moist and palatable as to be more readily eaten.—[Complete Grazier.]

* See Dr. Anderson's Essays on Agriculture, &c. vol. ii., Disquisition V., where this interesting fact is corroborated by experimental proofs, which our limits forbid us to introduce.

On Lucky and Unlucky Days.—We have sometimes thought it was as necessary to root out certain *errors* from the mind, as it is to extirpate *weeds* from the soil, because the sure effects of both are to impoverish, crowd upon, and overshadow better things.

It is a curious circumstance, that many of the superstitions of the old heathens—the Phœnicians, Greeks, and Romans—continue in Christian countries like the weeds that infest our fields. The popular notions of witchcraft, for example, appear to be the same as in the days of *Homer*, almost three thousand years ago; and many have heard of people who in our times were *said* to be as expert as *Circe* was, when she changed the soldiers of Ulysses into swine.

The worship of Baal, which involved the Israelites in such awful calamities, is probably continued, though in a milder form, in several countries of Europe, down to the present day. As late as the year 1807, fires, (on the authority of L. Von Buch,)—the remains of this ancient idolatry—were annually lighted *on the hills* throughout Germany, Sweden, and Norway; and in some parts of Great Britain, the ceremonies are still more remarkable.

"It might have been thought," says Calmet's Commentator, "that the pompous rituals of Popery would have superseded the druidical superstitions; or that the reformation to Protestantism would have banished them; or that the prevalence of various sects would have reduced them to oblivion; but the fact is otherwise."

That writer then shows, from the Statistical Accounts of Scotland, that "a town in Perthshire, on the borders of the Highlands, is called Tillie, or Tullie-Beltane, i. e. *the eminence*, (or rising ground,) *of the fire of Baal*. On *Beltane* morning, superstitious people go to drink of the well, and to make a procession round it; and "many who reckon themselves good Protestants, will not neglect these rites, even when *Beltane* falls on the Sabbath."

Another account, taken from the same authentic reports, is so curious that we present it entire: "On the first day of May, which is called *Beltan*, or Bal-tein day, all the boys in a township, or hamlet, meet in the moors. They cut a table in the green sod, of a round figure, by casting a trench in the ground, of such circumference as to hold the whole company. They kindle a fire, and dress a repast of eggs and milk in the consistence of a custard. They knead a cake of oatmeal, which is toasted at the embers against a stone. After the custard is eaten up, they divide the cake into so many portions, as similar as possible to one another in size and shape, as there are persons in the company. They daub one of these portions all over with charcoal, until it is perfectly black. They put all the bits of cake into a bonnet. Every one, blindfolded, draws out a portion. He who holds the bonnet is entitled to the last bit; whoever draws the black bit, is the devoted person who is to be sacrificed to Baal, whose favor they mean to implore, in rendering the year productive of the sustenance of man and beast. There is little doubt of these inhuman sacrifices having been once offered in this country, as well as in the East, although they now pass from the act of sacrificing, and only compel the devoted persons to leap three times through the flames; with which the ceremonies of this festival are closed."

Regulating business by the phases of the moon, is a practice also derived from the Heathens; and the following paragraph from Loudon shows in strong colors the mental slavery that was entailed by superstition on the conquerors of the world. Well may we rejoice in the *light* and *liberty* of the Gospel, which gives no countenance to any such absurdities; and earnestly ought we to plead with those among us who are still under that *thraldom*.

"Some things, Varro* observes, are to be done in the fields while the moon is increasing; others, on the contrary, when she is decreasing, as the cutting of corn and underwood. At the change of the moon pull your beans *before daylight;* to prevent rats and mice from preying on a vineyard, prune the vines *in the night time;* sow vetches before the twenty-fifth day of the moon, &c. 'I observe these things,' says Agrasius, (one of fifty authors who Varro says had written on husbandry, but whose writings are now lost,) 'not only in shearing my sheep, but in cutting my hair, for I might become bald if I did not do this in the wane of the moon.'"

The notion that some days are more lucky or unlucky than others, is another remnant of ancient Heathenism. This superstition was held by the Greeks at least as early as the time of Hesiod; and it appears to have been carefully preserved through all succeeding ages down to the present day. We have been acquainted with men who believed they had risen far above the prejudices of the vulgar, who were yet *afraid* to set out on a journey on "Friday." What reason can be advanced in support of this apprehension? Can we presume that the care of the Almighty is not over all his works on one day as well as on another? Or can we suppose that evil agents acquire a greater degree of strength *periodically*—that is, once a week? For ourselves, we have had a choice in our excursions to start on that day, in order to bear our testimony against superstition; and we can seriously assure our readers, that we have always been as successful in business, and as free from encountering dangers, as when we have gone forth on days vulgarly deemed "lucky."

Should any one glance an eye over our columns who is sensitive on this point; and should he ask what has all this to do with farming or horticulture? Cannot we go on just as well with our business whether we believe such things or not? We would answer, No—not near as well. We have known farmers who would not on any account begin an important operation on "Friday,"—not out of respect to the Heathen goddess,* after whom that day is called—but through fear that their progress would be retarded by "unlucky" events; and an instance has come to our knowledge, when the breaking up of a summer fallow ought to have been commenced on that day, as the team was idle and the ground softened by rain, but which was deferred till the ensuing week, for no other reason whatever than that the day was "unlucky." Such interruptions are heavy clogs on the business of a farm.

We think the following extract from a late periodical is much to the point: "It has been a prevailing notion among sailors, that *Friday* is an unlucky day of the week, and few can be found willing to go to sea on that day. To know that *Friday* does not always portend ill, this useful class of people may be told that Christopher Columbus embarked on his voyage for the discovery of America on *Friday*, August the 3d, 1492; and landed on Turk's Island, (the first land he made,) on *Friday*, October the 12th, of the same year."—[Genesee Farmer.]

* Marcus Terentius Varro, the friend of Julius Cæsar, was regarded as the most learned of the ancient Romans.

* Friga, or Freya, an imaginary deity of the Saxons.

RAISING CALVES.—Mr. L. Look, of Utica, gives in the Genesee Farmer, his experience in rearing calves. Instead of letting them run with the cows, he supplies them with a small quantity of milk, mixed with boiled potatoes and fine bran. When they are 3 or 4 months old, he feeds them with coarse bran, boiled potatoes, and warm water. With this food he has been very successful.

HEAD DRESS.—In one of Miss Hannah More's letters, written in 1777, we find the following.

"The other night we had a great deal of company, eleven damsels, to say nothing of men. I protest, I hardly do them justice, when I pronounce that they had, among them, on their heads, an acre and a half of shrubbery, besides slopes, grass-plats, tulip beds, clumps of peonies, kitchen gardens, and green-houses." In a note it is observed that Garrick put an end to this incredible but fashionable folly, by appearing in the character of Sir John Brute, dressed in female attire, with his cap decorated with a profusion of every sort of vegetables,—an immensely large carrot dependant from each side.

THE TOMATO.—Few vegetables of equal value are so little known through this country. None are more readily raised—none better repay the cultivator.

The tomato, or love apple, is a luxury in common use through the south of Europe. In France and Italy, particularly, it is largely employed in culinary preparations. Either raw or stewed, in soups, or fricassees, for gravy, or catsup, as well as for pickles and sweetmeats, its utility is such that it would not readily be dispensed with by those who have given it a fair trial in these various ways. The experience of several years enables me to recommend the tomato to all who desire the acquisition in their gardens of a cheap luxury. For salubrity none can surpass it. It has been constantly used in various forms at almost every meal during the last three or four seasons, by myself and several acquaintance, whose health continued excellent, even when the prevalence of the cholera banished fruits and vegetables generally from most tables.

Should any who are now unacquainted with the tomato, make the experiment of raising a supply, they may add to the simple luxuries of the table by adopting these directions for making tomato catsup:

The tomatoes, when fully ripe, should be bruised and boiled slowly for half an hour—then strained through a cloth, and the liquid boiled for another half hour, after adding salt and spices, but without any admixture of water. The scum should be carefully removed, so as to render the liquid as pure as possible. It should be bottled and kept in a cool place. After it has stood a short time, should any sediment be discovered in the bottles, (and in order to know with certainty, *clear* glass bottles would be the best for this use,) the liquor should be poured off into other bottles. In this way catsup of excellent quality—preferable, in my judgment, to that from mushrooms, and clear as choice Madeira—can be readily made, in greater quantity, and with less trouble, than in the common way. RHO.—[Genesee Farmer.]

IMPORTANT IMPROVEMENT IN THE SEXTANT.—Mr. D. Rowland, of London, has effected an important improvement in the sextant by a very simple yet ingenious contrivance. We had often heard Mr. Rowland's invention spoken of in terms of high commendation, but have had no opportunity of bearing testimony to the merits of his truly valuable sextant, until Thursday last, when he exhibited its powers at the Plymouth Institution, at the close of the lecture. It happened that the very evening on which Mr. H. Woollcombe (the President) had obligingly made arrangements for Mr. Rowland to explain his instrument to the society, Mr. Davies Gilbert, late President of the Royal Society, honored the Plymouth Institution with his presence. The conversation which took place on the subject of the "Double Sextant" was exceedingly interesting. Mr. Gilbert, some of the

members of the institution, (particularly Mr. Walker, of the Dock Yard,) and several strangers, offered their opinions on its advantages, which we think may be summed up generally under the following heads:

1st. The old sextant being limited to a range of 120, the lunar distances in the Nautical Almanac were only computed to that extent. Now, navigators know that lunar observations are of the utmost importance in long voyages by checking errors in chronometers; they consequently avail themselves of lunar observations, and prefer those taken by day, because the horizon is more distinctly seen, and the altitudes are more correctly taken, than by night. It will, therefore, be desirable to extend the distances in the Nautical Almanac, between the sun and moon, to 140 degrees.

2d. When an artificial horizon is used, no angle of altitude above 60 degrees could be taken with the old sextant; of course the latitude could not be found by a meridian altitude of the sun, if this altitude exceeded 60 degrees. By the new instrument, these difficulties vanish, since the meridian altitude of all the heavenly bodies may be taken by it when vertical and doubled by the artificial horizon.

3d. In addition to the above advantages may be added the following, namely, Since the sextant will possess a range of 240 degrees, it will of course span the visible hemisphere with the utmost ease. Now, if the dip be known, the refraction may be measured by the instrument at any place, and at any time. But this is not all: we know that our globe is not a perfect sphere, but of a spheroidal form; consequently tables for dip and terrestrial distance, if computed for a sphere, must be erroneous when applied to a spheroid. Dip for altitudes, or objects taken east or west, would differ for objects in a north or south direction, because meridians of longitude continued round the globe are elliptical, whereas parallels of latitude are a series of circles of unequal diameters. This being the case, it follows that the span of the visible hemisphere, in the direction of the earth's axis, will be different from that taken in a transverse direction. Rowland's "double sextant" would measure this difference at once, and point out a dip for each latitude, and each direction, with regard to the poles. This improved instrument may be used for ascertaining the true figure of our earth, and may either prove or disprove its form, as deduced from measured acres of its surface, or from calculations made from data furnished by the pendulum.—[Plymouth (Eng.) paper.]

Spiders.

The unamiable character of this insect, its unsightly appearance, and the zeal with which good housewives wage war against it, concur in preventing that general acquaintance with its habits, which its frequent occurrence, and domestic and sedentary mode of life, render of such easy attainment. The following account, though it adds nothing to the stock of existing information on the subject, affords details which to some of our readers will be new and interesting.

The characteristics of the whole class (*Aranea*), of which the species are many, may be thus stated. All spiders differ essentially in their internal structure from insects proper, and their external form is very peculiar. The feet are always eight in number, instead of six, as in insects, terminated by a moveable hook; the eyes are eight, or, though very rarely, six. The eight eyes of spiders are immoveable, and of a structure different from those of insects. As each consists of only one lens, it is deprived of the power of multiplying objects, and from its immobility, it can only perceive those which are placed immediately before it. The distribution of the eyes differs greatly in different species, but they are always disposed in such a manner as, with their number, to meet the deficiencies indicated, affording a beautiful instance of those "compensations" to which the attention of the student of nature is continually drawn. Spiders do not undergo metamorphoses, and all envelope their eggs in cocoons of silk, varying in form and texture in the different species.

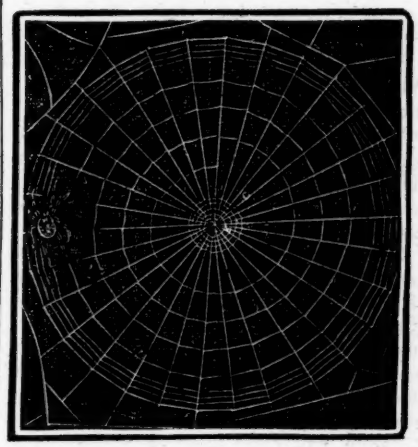
The process by which the web of the spider is woven is always open to observation. There are five spinnerets or teats

Garden Spider, (Epeira diadema,) suspended by a thread proceeding from its spinneret.

near the extremity of the abdomen, the apertures of which the insect can contract or enlarge at will. These apertures communicate by a tube with four reservoirs containing the gluey substance of which the thread is spun.

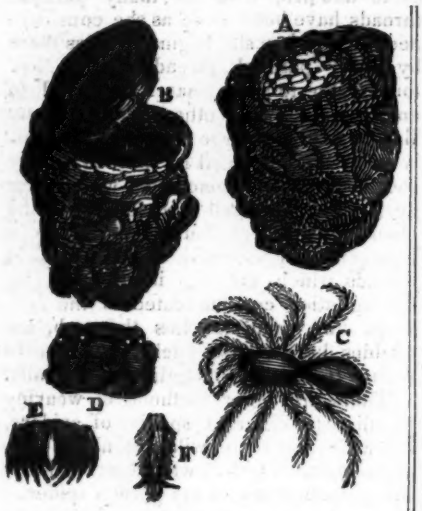
When the common house spider purposes to form a web, she generally chooses a place where there is a cavity, such as the corner of a room, as well to facilitate her escape in time of danger as for the advantage afforded of more complete inclosure. Having chosen a situation, she fixes one end of her thread to the wall, by applying her spinneret, and then passes to the other side, the thread following her as she recedes. After fixing the other end of the thread to the opposite wall, she returns, and thus passes to and fro, until as many parallel threads have been made as she considers necessary, when she begins to cross them by other parallel threads. Thus are formed the toils or snares designed to entangle flies and other small insects. But, besides this large web, she generally weaves a small cell for herself, where she lies quiet and concealed, waiting for her prey. This cell is sometimes in the centre of the web, but when not so, a connection is established by means of threads, which not only inform her, by the agitation communicated to the cell, when any thing touches the web, but enables her to pass quickly in order to secure the captive struggling in her toils.

There are other methods of weaving peculiar to different species of spiders, but which our limits will not allow us to enumerate. The following figure exhibits the geometric net of the garden spider.



Several species of spiders construct a cylindrical web under the ground, with a lid connected by a sort of hinge, which the inhabitant of the cell can open and shut at pleasure. In a volume entitled "Insect Architecture," will be found some very curious details of these contrivances of mason-spiders. The following offers an example of these wonderful exertions of instinct:

"Another mason-spider (*Mygale cæmentaria*, Latr.), found in the south of France, usually selects for her nest a place bare of grass, sloping in such a manner as to carry off the water, and of a firm soil, without rocks or small stones. She digs a gallery a foot or two in depth, and of a diameter (equal throughout) sufficient to admit of her easily passing. She lines this with a tapestry of silk glued to the walls. The door, which is circular, is constructed of many layers of earth kneaded, and bound together with silk. Externally it is flat and rough, corresponding to the earth around the entrance, for the purpose, no doubt, of concealment: on the inside it is convex, and tapestried thickly with a web of fine silk. The threads of this door-tapestry are prolonged, and strongly attached to the upper side of the entrance, forming an excellent hinge, which, when pushed open by the spider, shuts again by its own weight, without the aid of spring hinges.



A, the nest of the Mason-Spider, shut; B, the nest open; C, the spider, (mygale cæmentaria); D, the eyes, magnified; E F, parts of the foot and claw, magnified.

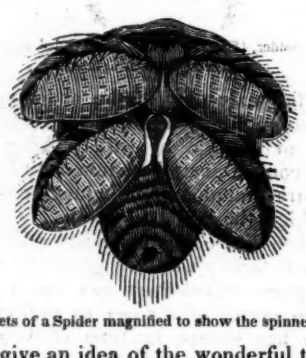
When the spider is at home, and her door forcibly opened by an intruder, she pulls it strongly inwards, and even when half-opened often snatches it out of the hand; but when she is foiled in this she retreats to the bottom of her den as her last resource.

Some spiders are aquatic, and spin a cup-like web, which answers the purpose of a diving bell, under which they disengage the air they bring down from the surface, and pass their lives feeding on aquatic insects. Some spin no web, but take their prey by running; others, by approaching quietly till within a certain distance, when they suddenly spring upon their prey.

The means which spiders employ in transporting themselves from one place to another are not a little curious. When the insect is inclined to change its situation, it hangs itself perpendicularly by a thread, and turning its head towards the wind, shoots out others from behind, which are wafted about by the air, until they fasten on trees, walls, and other bodies; when the spider finds that the threads have attached themselves, which it ascertains by pulling them in with its feet, it uses them as a bridge to pass to the place where they are fixed. Such threads are frequently seen running parallel to the horizon, from one wall to another in a house, from one tree to another in a field, and even from wall to wall across gardens of considerable extent. That spiders had the means of floating through the air appears to have been first ascertained by Dr. Lister and Dr. Hulse, towards the end of the 17th century. After the insect has, in the manner just described, thrown out one or more threads to the length of several fathoms, it snaps that from which it hung, and then floats away with the wind; and although, of course, it cannot proceed against the wind, it seems to have some control over its own course, using its feet in the way of oars to steer, and perhaps, in some measure, to row. Many theories have been attempted for the explanation of this phenomenon; amongst others that it depends upon the electrical state of the atmosphere.

The height to which they can attain is very surprising. In a letter to Mr. Ray, Dr. Lister mentions that in October, 1670, he observed the air to be very full of these webs, and immediately ascended to the top of the highest steeple of York Minster, and could there observe them still very high above him. Autumn is the principal season for these aerial voyages, though they are occasionally undertaken at other times in clear and calm weather. As these floating webs are, like those in the lower regions, frequently garnished with legs, wings, and other marks of slaughter, it is concluded that the spiders capture gnats and other insects in their passage. In all stages of their existence, spiders prey with the most savage ferocity on all insects they can overcome, and also upon one another. Spiders seize and kill their prey with a pair of sharp, crooked claws, or forceps, placed in the fore part of the head. They can open or extend these pincers as occasions require; and, when undisturbed, they suffer them to lie one upon another. It is affirmed that the spider injects a poisonous juice into the wound it makes. They cast their skins once a year, and they perform this operation by suspending themselves in some corner, and creeping out of their case. These skins are found in the webs dry and transparent, with the legs attached to them.

It should be observed that the apertures in the spinnerets of the spider, from which the viscid matter which forms the web is emitted, are exceedingly numerous. M. Reaumur often counted 70 or 80 in a single teat by means of a microscope, and could perceive that there were infinitely more than he could enumerate. It is computed that there are about 1000 apertures in each teat; and, as there are five teats, each thread of the spider consists of 5000 separate fibres, which are united at a very minute distance from the teats.



Spinnerets of a Spider magnified to show the spinnerules.

To give an idea of the wonderful tenuity of the thread of the full-grown insect, it has been computed that an ordinary human hair is as large as 10,000. But this is not

"The spider's most attenuated thread,"

for the young begin to spin as soon as they leave the egg; and how fine must the thread be which is drawn from the minute apertures in the teats of insects whose whole bulk does not equal that of a single teat of the mother! Leeuwenhoek calculates that, when the young spiders first begin to spin, 400 of them are not larger than one of full growth; we may therefore presume, on the data of the preceding computation, that 4,000,000 of such threads do not exceed in bulk a single human hair.

About the beginning of the last century, M. Bon, of Languedoc, having observed that a short-legged species of garden spider enclosed its eggs in bags composed of threads of much thicker and stronger texture than those which form the web, was led to think that they might be manufactured into a kind of silk. On making the experiment, he found that the threads could not be wound off, and he therefore had them carded with unusually fine cards. A silky substance of an ash color was thus obtained, that was easily spun into fine and strong threads, which M. Bon caused to be manufactured into gloves and hose, and found that three ounces of this material would make a pair of stockings for a large man whose common silk stockings weighed between seven and eight ounces. The result of M. Bon's experiment, and the actual production of the manufactured articles before the Royal Academy of Sciences, led to very sanguine expectations of the benefit which might be derived from these insects. But M. Reaumur, who was appointed by the Academy to investigate the subject, made a report which completely discouraged the expectations which had been raised. He stated that the natural ferocity of the spiders renders it impracticable to breed and keep them together. He distributed 4000 or 5000 into different cells, in numbers varying in each cell from 50 to 200, and fed them with flies and the bloody ends of young feathers; but the smaller insects were soon devoured by the larger, so that in a short time there were but one or two left in each cell. To this disposition in spiders of devouring one another, M. Reaumur attributes their comparative scarcity, considering the vast number of eggs they lay. It is thus impossible to establish the insects in a community; and, if it were practicable, more room and attention would be required than the produce would recompense. A much greater number of spiders than of silkworms would be necessary to produce the same quantity of silk; and the bag of the spider is, after all, much inferior to that of the silkworm both in lustre and strength. M. Reaumur computed that 2304 worms will produce a pound of silk; and as he considers the work of 12 spiders only equal to that of one silkworm, a pound of silk would require 27,648 spiders; and as the females only form the bags to deposite their eggs in, he supposes it would be necessary to have an equal number of males; so that, in order to obtain a quantity of silk equal to that furnished by 2304 silkworms, it would be requisite to keep 55,296 spiders.—[Penny Magazine.]